ENDOMETRIAL CARCINOMA

A CLINICOPATHOLOGICAL STUDY

Dissertation submitted
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Branch - II

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MADRAS MEDICAL COLLEGE

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CERTIFICATE

This is to certify that the dissertation titled "**ENDOMETRIAL CARCINOMA - A CLINICO-PATHOLOGICAL STUDY"** is a bonafide work done by **Dr.D.LAKSHMI** in the Institute of Obstetrics and Gynaecology, Madras Medical College, Chennai in partial fulfillment of the university rules and regulations for award of MS degree in Obstetrics and Gynaecology under my guidance and supervision during the academic year 2011-2014.

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DECLARATION

I solemnly declare that this dissertation entitled **"ENDOMETRIAL CARCINOMA - A CLINICO-PATHOLOGICAL STUDY"** was done by me at Institute of Obstetrics and Gynaecology, Madras Medical College during the year 2011 - 2014 under the guidance and supervision of **Prof.DR.T.KRISHNAVENI M.D.,DGO.** This dissertation is submitted to The Tamil Nadu Dr.M.G.R. Medical University towards the partial fulfillment of requirements for the award of M.S. Degree in Obstetrics and Gynaecology (Branch -II)

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ABSTRACT

ENDOMETRIAL CARCINOMA – A CLINICOPATHOLOGICAL STUDY

INTRODUCTION

Endometrial carcinoma is the fourth most common cancer in females, ranking behind breast, lung and bowel cancers in the Western population. It is the eighth leading cause of death from malignancy in women. It is the most common gynaecological malignancies in Western world. In India, cervical cancer ranks first among gynecological malignancies. However in recent years there is a increasing trend in the incidence of endometrial carcinoma.

AIM OF THE STUDY

The aim of our study is to analyze various etiological factors responsible for endometrial carcinoma, to study the various clinical presentations, ideal investigations and management of endometrial carcinoma and assess the outcome of endometrial carcinoma.

MATERIALS AND METHODS

All patients who were diagnosed to have endometrial carcinoma by dilatation and curettage or detected after surgery by histopathological examination were enrolled in the study and their clinical profile was analyzed for various

demographic details, presenting signs and symptoms, menstrual history, associated medical disorders and family history .Their height, weight, BMI, Clinical examination findings and results of various investigations were tabulated. Details of surgical procedure and intraoperative findings were recorded. Patients were then staged as per FIGO staging and histopathological features were documented. Patients were then either observed as in stage I A or given appropriate adjuvant therapy post operatively with vaginal brachytherapy or chemoradiation for other stages. All patients were followed throughout the study. Data were entered into a standard proforma and analyzed.

RESULTS

Risk factors for endometrial carcinoma like early menarche, late menopause, nulliparity, infertility, are not observed among our patients but the incidence is increasing in our population probably because of increased obesity. Endometrioid adenocarcinoma is the most common histologic type noted and most of them presented with stage I disease .2 year survival for endometrial carcinoma is 85%

CONCLUSION

To promote healthy lifestyle and decrease incidence of obesity among our population. Post menopausal hormone therapy should used along with progesterone to prevent endometrial stimulation. Early diagnosis and management can improve survival in endometrial carcinoama patients as shown in our study.

Key words

Endometrial carcinoma, obesity, ,hysterectomy ,lymphadenectomy ,FIGO staging

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INTRODUCTION

Endometrial carcinoma is the fourth most common cancer in females, ranking behind breast, lung and bowel cancers in the Western population. It is the eighth leading cause of death from malignancy in women. It is the most common gynaecological malignancies in Western world. In India, cervical cancer ranks first among gynecological malignancies. In population based cancer registry of Delhi, the incidence of endometrial cancer is 4.3/ 100,000 women per year (ICMR). However in recent years there is a increasing trend in the incidence of endometrial carcinoma. Probable reasons include a decline in the incidence of cervical cancer due to its early detection by increased use of PAP smear, VIA VILI and colposcopy and a rise in the risk factors of Endometrial carcinoma like increased longevity of women, obesity, changing life styles, increased incidence of diabetes and hypertension and use of postmenopausal hormone therapy . Since >70% of cases, are confined to uterus at time of diagnosis, early diagnosis is likely to cure endometrial cancer. Hence we are in the verge of understanding endometrial carcinoma and its clinicopathological features.

AIM OF THE STUDY

1) To analyze various etiological factors responsible for endometrial carcinoma

2) To study the various clinical presentations, ideal investigations and management of endometrial carcinoma

3) To assess the outcome of endometrial carcinoma

REVIEW OF LITERATURE

Gallup et al analyzed endometrial carcinoma patients younger than 40 years as compared with those 41 years of age or older and found that obesity was 43.8%, nulliparity 44% hypertension 31.2% and diabetes 6.2% among young patients and tended to have a well-differentiated tumor, and 31.2% had polycystic ovaries.

Connelly PJ et al studied eight hundred sixty-five patients with confirmed adenocarcinoma of the endometrium. They found age at diagnosis was the single most important clinical determinant of survival. Nuclear grade was a significantly more accurate indicator than was histologic grade. Stage and depth of invasion were also important predictors of survival.

Fanning et al studied all cases of endometrial adenocarcinoma treated at the Geisinger Medical Center from January 1970 to June 1980 were reviewed in an attempt to elucidate the clinical and pathologic profiles of the various histologic subtypes. Histologic subtypes were adenocarcinoma 66%, adenoacanthoma 16%, adenosquamous 5%, papillary 8%, clear cell 3%, and secretory was 2%.Adenosquamous, papillary, and clear cell have decreased 5-year

survival and appears to be associated with increased grade 3 differentiation and deep myometrial invasion .

Jobo et al analyzed patients younger than 50 years of age clinicopathologically in comparison with those of other age groups. The results were 29.3% were diagnosed in those younger than 50 years of age .The average age of endometrial cancer was 53.6 years. The majority of these patients 93.4% complained of vaginal bleeding. History of irregular menstrual cycle was only observed in 25.6% of the patients with the age 50 or older, whereas it was 61.5% with 40 and less . Nulliparity was found in 19.8%. Hypertension was found more frequently in older patients, but diabetes mellitus and obesity did not correlate with age. Well differentiated adenocarcinoma (G1) and adenoacanthoma was observed frequently in younger age group. Endometrial hyperplasia was often combined with cancer in young women.

Gao js et al elicited that were high incidences of infertility, irregular menstruation, endometrial hyperplasia, obese and polycystic ovaries in patients aged 45 years and younger, indicating the relationship between endometrial carcinoma and estrogen.

Kelsey et al did a case-control study of the epidemiology of endometrial cancer in women aged 45-74 years was carried out in

Connecticut from 1977 to 1979. In total, 167 cases and 903 controls were included. The study found that use of oral contraceptives was associated with a decreased risk, although the decrease did not reach statistical significance.

Lapinska, et al analyzed the risk factors of endometrial carcinoma and found that the percentage of nulliparas was lower than it is described in literature (40-50%) and was 16.2%

Iatrakis et al studied women younger than 50 years with endometrial cancer and found that body mass index (BMI), parity, type of menstrual cycles, diabetes and history of polycystic ovarian (PCO) syndrome are probably related to endometrial cancer in women younger than 50 years of age, and the strongest relation was found with increased BMI.

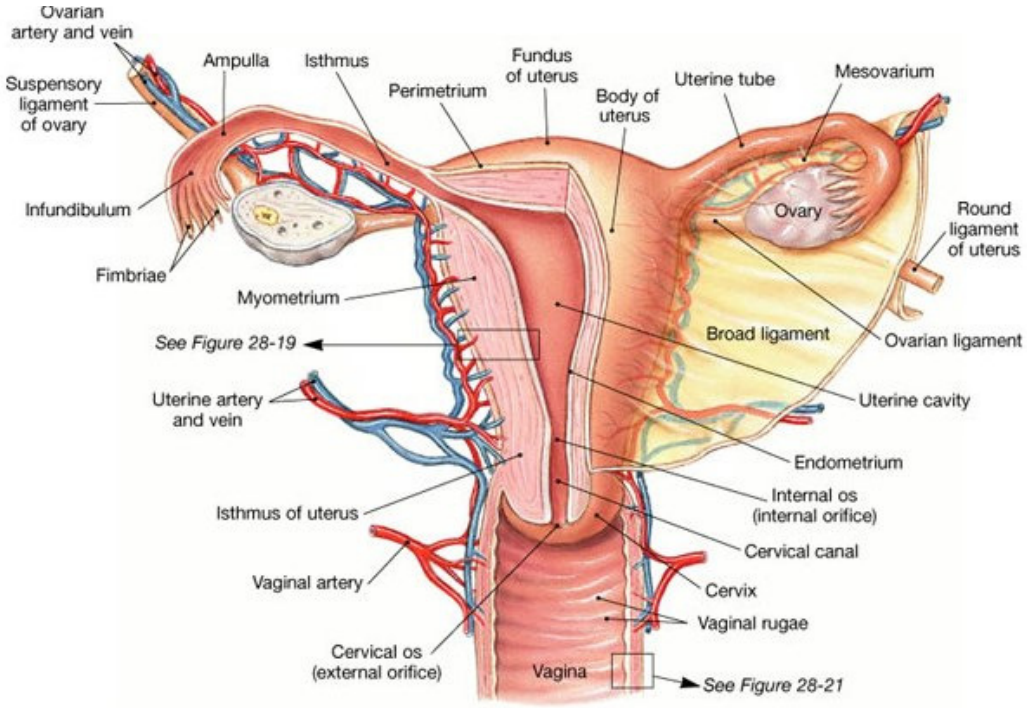
ANATOMY

The uterus is situated in the pelvic cavity between the bladder and the rectum. It is divided into two parts the body (corpus) and the cervix that are separated by a slight narrowing of the uterus, known as the isthmus. This is the level of the internal os of the cervix. The cervix is divided into the supravaginal portion, which is closely approximated to the bladder, and the vaginal portion, which projects into the cavity of the vagina. The principal ligaments of support for the uterus are the broad ligaments, the round ligaments, the uterosacral ligaments, and the cardinal ligaments.

Blood is supplied to the uterus by the uterine artery, which is a branch of the hypogastric artery and which enters the wall of the uterus at the isthmus after it crosses over the ureter. It anastomoses with the ovarian artery in the ovarian ligament.

The lymphatics of the myometrium drain into the subserosal network of lymphatics, which coalesce into larger channels before leaving the uterus. Lymph flows from the fundus toward the adnexa and infundibulopelvic ligaments. The lymph flow from the lower and middle thirds of the uterus tends to spread in the base of the broad ligaments towards the lateral pelvic side wall . There are three

drainage channels from the uterus: from the fundus, with the ovarian vessels; in the folds of the broad ligament; along the mesosalpinx and fallopian tubes; and along the round ligaments to the femoral lymph nodes.



(c) Posterior view

EPIDEMIOLOGY AND RISK FACTORS

Endometrial carcinoma is a disease of the postmenopausal woman, although 25% of the cases occur in premenopausal patients, with 5% occurring in patients younger than 40 years of age(1,2). Average age of diagnosis is 60 years. Most of the risk factors of endometrial carcinoma are related to PROLONGED UNOPPOSED OESTROGEN STIMULATION of the endometrium .

This increased risk among nulliparous women could be due to lack of hormonal factors during pregnancy and lactation, which represents a period with reduced exposure to unopposed oestrogen . Early menarche and late menopause expose the uterus to oestrogen of menstrual cycles for a long period. Infertility and irregular menstrual cycles cause anovulatory cycles and hence prolonged exposure to oestrogen with insufficient progesterone. Obesity causes excess oestrone from peripheral aromatisation of androstenedione. Other causes of long term oestrogen exposure like polycystic disease, functioning ovarian tumours, exogenous menopausal oestrogen therapy without progestins increase the risk. Use of Tamoxifen for the treatment of breast cancer is associated with increased risk due to the oestrogenic action of Tamoxifen on the endometrium. Diabetes

mellitus, hypertension and hypothyroidism are associated with endometrial carcinoma. Women with LYNCH II syndrome have 40 % to 60 % lifetime risk for endometrial carcinoma.A reduced risk of uterine cancer among smokers has been reported. Cigarette smoking has been linked to an earlier age at natural menopause and to reduced levels of endogenous estrogens.

Risks factors for endometrial carcinoma

Characteristics	Relative risk
Obesity	
>20 lb	3
>50 lb	10
Nulliparous	2- 3
Late menopause	2.4
Diabetes mellitus	2.8
Hypertension	1.5
Unopposed estrogen	4-8
Complex atypical hyperplasia	29
Lynch II	20
Tamoxifen therapy	2-3

Geographic variation in rates of uterine cancer, with high rates in certain industrial areas, has led to the suggestion that certain environmental agents may affect risk. There has been particular concern about a potential role for certain endocrine disruptors,

including dichlorodiphenyltrichloroethane (DDT). Women of upper socioeconomic status have been reported to be at a higher risk of uterine cancer. This may be partially explained by risk factors correlated with affluence e.g., the use of estrogen replacement therapy, obesity etc.

HYPERPLASIA

Endometrial hyperplasia includes wide range of morphologically and biologically altered stroma and glands of endometrium ranging from exaggerated physiologic status to carcinoma in situ. Hyperplasia is seen in a background of proliferative endometrium due to prolonged oestrogen stimulation without progesterones. Endometrial hyperplasias cause abnormal uterine bleeding, can be associated with oestrogen producing tumours or hormone therapy and can precede or occur along with endometrial cancer. Some hyperplasias may regress if the estrogenic stimulus is removed or in response to progestational or antiestrogenic treatment. The probability of progression to adenocarcinoma is related to the degree of architectural or cytologic atypia. Coexistent adenocarcinoma is present in 1% to 40% of hysterectomies performed to treat

hyperplasia, with the latter number reflecting the frequent co-occurrence of carcinoma with atypical complex hyperplasia.

Hyperplasia is classified based on architecture of glands into simple or complex and based on cytologic features into typical or atypical. The resulting classification has four categories as follows: simple hyperplasia (SH), complex hyperplasia (CH), simple atypical hyperplasia (SAH) and complex atypical hyperplasia (CAH).

Simple hyperplasia is composed by enlarged or cystic glands with irregular shapes, increased glandular to stromal ratio. There is no glandular crowding or cytologic atypia. The endometrium is thicker than usual. Follow-up of patients with this condition reveals little or no progression to carcinoma.

Complex hyperplasia has complex architecture like budding and infolding of crowded glands with decreased stroma and there is no cytologic atypia. The endometrium is increased in thickness. The two main features differentiating this from simple hyperplasia are the back-to-back glands and the intraluminal papillae. Epithelial pseudostratification is a frequent finding.

Atypical Hyperplasia is characterized by cytologic atypia including nuclear hyperchromatism , enlargement of the nuleus and increased nuclear-cytoplasmic ratio. Nuclei are irregularly sized and shaped with thick nuclear membrane and prominent nucleoli. The nuclei have irregular scattered coarse chromatin clumps with parachromatin clearing.

Classification of endometrial hyperplasia

Types of hyperplasia	**Progression to cancer%**
Simple (cystic without atypia)	1
Complex (adenomatous without atypia)	3
Simple (cystic with atypia)	8
Complex (adenomatous with atypia)	29

Patients with complex and atypical hyperplasia may be treated by hysterectomy or by periodic use of progestins, depending on age and reproductive desires. Hysterectomy is the preferred treatment in the patient with complex atypical endometrial hyperplasia. A progestin should be administered at least 10 to 14 days each month,

and endometrial biopsies should be performed at 3- to 4-month intervals to assess treatment results.

CLINICAL FEATURES

Endometrial carcinoma occurs most often in the 6th and 7th decades of life, with a median age at onset of 60 years. Most patients are postmenopausal, and the remainder are usually in the climacteric, or so-called perimenopausal, years. It is estimated that 75% of the cases occur in patients 50 years old and older, and 95% occur in patients over 40 years of age. The disease, although reported in patients as young as age 16 years, is rare in patients younger than 30 years of age. Abnormal vaginal bleeding is their only symptom in about 90% of patients and many recognize this symptom and consult their physician within 3 months. 10% may show leukorrhea. Pelvic pressure and discomfort indicate uterine enlargement or spread of tumour to extrauterine sites. Less than 5 % are asymptomatic, usually detected as a result of evaluation of abnormal Pap smear or in USG or CT done for an unrelated cause or detected in uterus removed for a benign cause.

Dilatation and curettage is the gold standard for evaluating abnormal uterine bleeding and diagnosing endometrial carcinoma.

Endometrial aspiration biopsy along with endocervical sampling can be done in the outpatient department. Results of endometrial biopsies are similar to endometrial curettage(3,4) . However, the methods, individually or combined, may miss an existing endometrial carcinoma because the sampling is random and does not include the entire endometrium. Hysteroscopy is accurate in identifying polyps. Abnormal findings are seen in only 30% to 50 % of patients in PAP smear and hence it is not a reliable tool for diagnosing endometrial cancer.

PATHOLOGIC DIAGNOSIS

The International Society of Gynecologic Pathologists (ISGP) and the WHO last revised the classification of uterine tumors in 1992. Mixed carcinomas with two distinctive cell types are relatively common, and are defined as those carcinomas in which the secondary component constitutes at least 10% of the neoplasm.

CLASSIFICATION OF ENDOMETRIAL CARCINOMA

Endometrioid adenocarcinoma

Variants:

Papillary or Villoglandular variant
Secretory carcinoma
Adenocarcinoma with squamous differentiation

Mucinous Carcinoma

Papillary Serous Carcinoma

Clear-Cell Carcinoma

Squamous Carcinoma

Undifferentiated Carcinoma

Mixed Carcinoma

FIGO definition for GRADING of endometrial carcinoma:

- G1-5% or less of a nonsquamous or nonmorular solid growth pattern.
- G2-6% to 50% of a nonsquamous or nonmorular solid growth pattern.
- G3-More than 50% of a nonsquamous or nonmorular solid growth pattern.
- ❖ Notable nuclear atypia, inappropriate for the architectural grade, raises a grade 1(G1) or grade 2(G2) tumor by one grade.
- ❖ In serous adenocarcinomas, clear-cell adenocarcinomas and squamous-cell carcinomas, nuclear grading takes precedence.
- ❖ Adenocarcinomas with squamous differentiation are graded according to the nuclear grade of the glandular component.

HISTOLOGIC TYPES

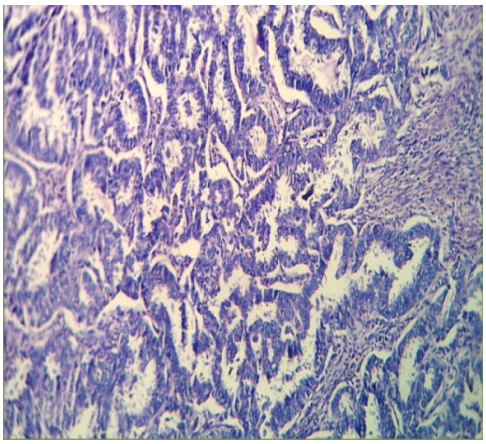
Endometrioid Adenocarcinoma

Endometrioid adenocarcinoma constitutes 75% to 80% of the endometrial cancer. Characteristically, tumour is made up of glands similar to normal glands of the endometrium. The glands are lined by tall columnar cells and nucleus is basally oriented. There is no intracytoplasmic mucin(5,6). As the tumour becomes less differentiated it contains increased solid areas, decreased gland formation and increased nuclear atypia.

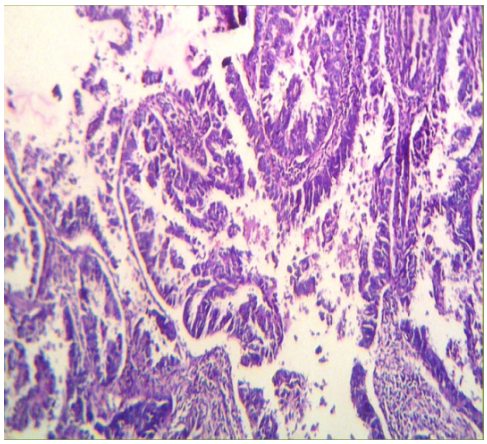
Gross Specimen

Cut Section of the Uterus showing the tumour

Endometrioid Carcinoma – Low power view



Irregularly placed glands



Section showing strafication

Variants

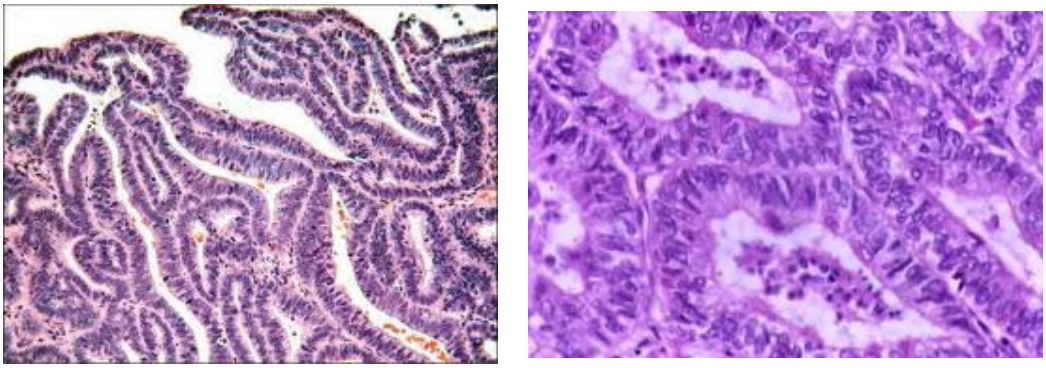
Adenocarcinoma with Squamous Differentiation

Foci of squamous differentiation are found in about 15 % to 25% of endometrial adenocarcinomas(7) . Historically, the tumors were sometimes separated into adenoacanthoma or adenosquamous carcinoma based on whether the squamous component appeared histologically benign or malignant.

Villoglandular or Papillary variant

Villoglandular configuration is present in 2 % of endometrioid adenocarcinoma characterized by neoplastic columnar cells covering delicate fibrovascular cores and the tumor cells architecturally

resemble those of other endometrioid adenocarcinomas, with which they are often admixed. In the largest study to date, villoglandular carcinomas were better differentiated than endometrioid carcinomas, but the age at diagnosis, depth of myometrial invasion, nodal spread, and survival were similar to those of endometrioid carcinomas, justifying their classification as a subtype of endometrioid adenocarcinoma(8) .



Villoglandular variant of Endometrioid Carcinoma

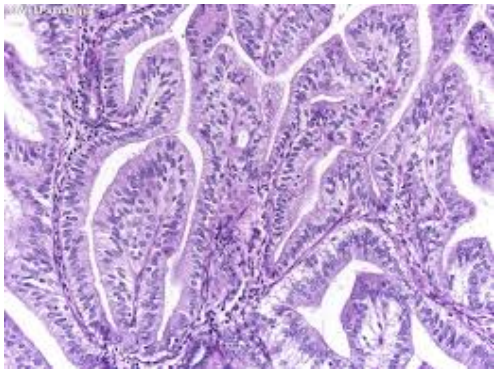
Secretory Carcinoma

Secretory carcinoma is a variant and comprises >1% of endometrioid carcinoma. Histology shows well-formed glands with columnar epithelium containing intracytoplasmic vacuoles similar to secretory endometrium. The intracellular secretions are not mucin but glycogen. The cellular features of secretory carcinoma differentiate it from clear-cell carcinoma, which is more papillary with more pleomorphic nuclei. By its lack of mucin, secretory carcinoma may be

differentiated from mucinous carcinoma. Recognition of secretory carcinoma is important because it has a less virulent clinical course although the clinical profile of patients is similar to that of patients with adenocarcinoma.

Mucinous Carcinoma

Mucinous adenocarcinoma is rare in the endometrium accounting for about 5 % in contrast to its high frequency in the endocervix. The characteristic cellular pattern should represent over 50% of the entire tumor. Typically, there are papillary processes and cystically dilated glands lined by columnar or pseudostratified columnar epithelium. Primary endometrial carcinoma is differentiated from endocervical adenocarcinoma by merging of tumour with normal endometrium, foamy stromal cells, presence of metaplastic squamous epithelium or areas of typical endometrioid adenocarcinoma.



Mucinous Carcinoma

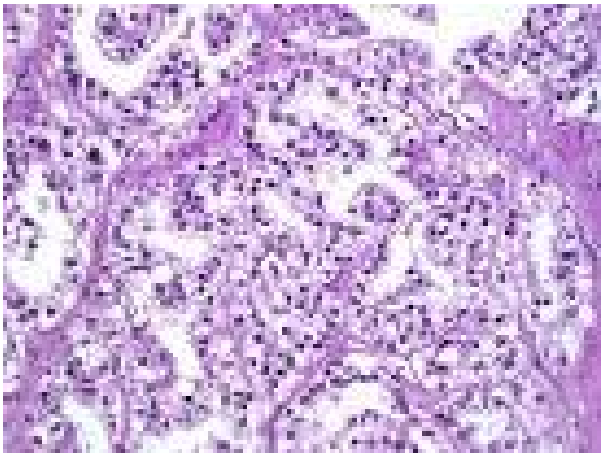
Serous Carcinoma

Serous carcinoma of the endometrium is similar to serous carcinoma of the ovary and fallopian tube due to its papillary growth and cellular features. It occurs in older women in an advanced stage(9). Fibrous papillary fronds are lined by epithelial cells, which are almost devoid of cytoplasm, but which manifest stratification, atypism, pleomorphism, mitotic figures, and bizarre forms. It is differentiated from clear-cell carcinoma by greater degree of papillary processes, increased nuclear atypia, and reduced cytoplasm in papillary serous carcinoma. Psammoma bodies are frequently observed in serous carcinoma, but solid growth is more common in clear-cell carcinoma.

Serous carcinoma represents approximately 10% of endometrial carcinomas, which is fortunate because it is an aggressive tumor. The tumors often deeply invade the myometrium, and unlike typical endometrioid adenocarcinoma, there is a propensity for peritoneal spread. Endometrial intraepithelial carcinoma (EIC)(10,11,12,)is a distinctive lesion that is specifically associated with serous carcinoma. It usually arises from atrophic polyps rather than hyperplasia and there is no epidemiological relationship with oestrogen exposure.

Clear-Cell Carcinoma

Clear-cell adenocarcinoma constitute less than 4% of all endometrial carcinoma. The hallmark of clear-cell carcinoma is the presence of neoplastic cells with optically clear cytoplasm, reflecting an abundance of glycogen. Four basic architectural patterns of clear-cell adenocarcinoma exist, including solid, glandular, tubulocystic, and papillary, but most cases display an admixture of patterns and lining cells have a hobnail appearance. In contrast with the diethylstilbestrol (DES) related clear-cell carcinomas of the vagina and cervix, clear-cell carcinoma of the endometrium is almost exclusively a disease of menopausal women. 5-year survival rate is only about 33 % to 65% due to its aggressive nature.



Clear-Cell Carcinoma

Squamous Carcinoma

Although focal squamous differentiation is common in endometrial adenocarcinoma, pure squamous carcinoma of the endometrium is extremely rare, representing less than 1% of endometrial carcinoma. Most patients are postmenopausal. Squamous carcinoma of the endometrium is established as primary in the endometrium after a cervical origin is ruled out. It should not be associated with benign or malignant squamous epithelium of cervix. It is associated with pyometra, cervical stenosis, and inflammation. Tumour has poor prognosis with survival rate of 36 %.

Undifferentiated Carcinoma

Undifferentiated carcinoma of the endometrium has no glandular, squamous, or sarcomatous differentiation in routinely stained sections. Some cases contain argyrophilic cells or neurosecretory granules demonstrated by immunohistochemical stains or electron microscopy. Glassy-cell carcinoma comprises less than 1% of endometrial tumours. It is characterized by cytoplasm that has a ground-glass appearance, as in the cervix. Although few cases have been reported, like serous and clear-cell carcinomas, glassy-cell carcinoma appears to be aggressive.

Mixed Cell Type

If an endometrial carcinoma manifests two or more different cell types, each representing at least 10% or more of the tumor, the term mixed cell type is appropriate.

Simultaneous Tumors

Simultaneous tumours of the endometrium and ovary are the most common simultaneously occurring malignancies of the genital tract with an incidence of 1.4% to 3.8 %. Mostly both are grade I tumours of early stage with good prognosis. Abnormal uterine bleeding is the common symptom in these patients .The ovarian tumour is usually diagnosed incidentally and at an early stage because of the symptomatic uterine carcinoma and hence has better prognosis. If the endometrial tumor is less than 5 cm in diameter, the ovarian lesion is unilateral, invasion is less than the middle third, vessels are not involved, and the endometrial carcinoma is well differentiated, metastasis to the ovary is unlikely.

CLINICAL STAGING

Clinical staging should be done only in patients who are not eligible for surgical staging due to poor medical condition. With

advanced anaesthesia techniques and surgical methods almost all patients are medically fit for surgical therapy. Few patients may not be eligible for surgical staging because of involvement of cervix, parametrium , bladder or rectum or metastasis to distant sites.

CLINICAL STAGING, FIGO, 1971

Stage	Characteristics
I	Carcinoma is confined to the corpus
IA	Length of the uterine cavity is 8 cm or less
IB	Length of the uterine cavity is more than 8 cm
II	Carcinoma involves the corpus and cervix
III	Carcinoma extends outside the uterus but not outside the true pelvis
IV	Carcinoma extends outside the true pelvis or involves the bladder or rectum

Important prognostic factors like histologic type and grade can be assessed before surgery, although grade, determined by dilatation and curretage, has 31% inaccuracy rate when compared to histopathological grade while grade 3 tumors are 50% inaccurate. This led the FIGO, in 1988, to define endometrial cancer as a surgically staged disease, including many of the prognostic factors into the staging process.

FIGO STAGING

INTERNATIONAL FEDERATION OF GYNECOLOGY AND OBSTETRICS (FIGO)2008 SURGICAL STAGING SYSTEM FOR ENDOMETRIAL CARCINOMA

I- Tumor confined to the corpus uteri

IA -Tumor limited to endometrium or invades less than one-half of the myometrium

IB -Tumor invades one-half or more of the myometrium

II- Tumor invades stromal connective tissue of the cervix but does not extend beyond uterus*

IIIA - Tumor involves serosa and/or adnexa (direct extension or metastasis)**

IIIB -Vaginal involvement (direct extension or metastasis) or parametrial involvement**

IIIC -Metastases to pelvic and/or para-aortic lymph nodes**

IIIC1- Regional lymph node metastasis to pelvic lymph nodes (positive pelvic nodes)

IIIC2- Regional lymph node metastasis to paraaortic lymph nodes, with or without positive pelvic lymph nodes

IV -Tumor invades bladder and/or bowel mucosa, and/or distant metastases

IVA -Tumor invades bladder mucosa and/or bowel (bullous edema is not sufficient to classify a tumor as IV)

IVB -Distant metastasis (includes metastasis to inguinal lymph nodes intra-peritoneal disease, or lung, liver, or bone)

* Endocervical glandular involvement only should be considered as Stage I and no longer as Stage II.

** Positive cytology has to be reported separately without changing the stage.

PATHOLOGIC FACTORS OF PROGNOSTIC SIGNIFICANCE

Although disease stage is the most significant prognostic variable affecting survival, other individual prognostic factors are discussed below.

Histologic Cell Types

10 % of endometrial cancer are nonendometrioid histologic types and are associated with increased recurrence and distant spread. Endometrioid type had 92 % survival rate but patients with one of the

aggressive subtypes like adenosquamous, serous, clear cell and undifferentiated had survival of only 33%.

Histologic Grade

The degree of differentiation is one of the most sensitive indicators to assess tumor spread. Poorly differentiated tumours(Grade III) are associated with deep myometrial invasion and, subsequently, higher rates of pelvic and paraaortic lymph node involvement .

Myometrial Invasion

The depth of myometrial invasion should be recorded in all pathologic reports, preferably in both millimeters and in the percentage of total myometrial thickness. Deep myometrial invasion increases the access of tumour to lymphatic system and is associated with a increased extrauterine tumor spread, treatment failure, and recurrence.

Isthmus-Cervix Extension

The position of tumor within the uterus has generally been considered to be important in the prediction of nodal spread. If only the fundus is involved, 8% of patients may have pelvic node metastases. Isthmus-cervix (lower segment) involement is associated

with 16 % risk. Fundal lesions have 4 % paraaortic lymph nodes, and lower-segment lesions have a 14% risk of positive paraaortic nodes .

Vascular Space Invasion

Lymphatic invasion is a strong predictor of tumor recurrence and death from tumor and is irrespective of depth of myometrial invasion or differentiation .It identifies patients who can have spread to lymph nodes especially pelvic nodes or distant sites.

Adnexal Involvement

Six percent of clinical stage I and occult stage II patients have spread of tumor to the adnexa. Of these, 32% have pelvic node metastases compared with 8% pelvic node positivity if adnexal involvement is not present. 20% have positive paraaortic node metastases, which is four times greater than if adnexal metastases are not present.

Intraperitoneal Spread

Intraperitoneal spread in the absence of adnexal metastases is associated with lymph nodes involvement. 51% percent of patients with intraperitoneal spread have pelvic node involvement. Positive paraaortic nodes is seen in 23% of patients with peritoneal spread.(14)

Peritoneal Cytology

Positive peritoneal cytology causes decreased survival only if there is adnexal , peritoneal or lymph nodal involvement and not if the disease localised to the uterus. In the absence of other poor prognostic factors, positive peritoneal cytology has no significant effect on recurrence and survival.

Pelvic and Paraaortic Lymph Node Metastases

The most significant prognostic factor affecting survival in early stage carcinoma is lymph node involvement. The highest rate of paraaortic node metastases (32%) occurred if pelvic nodes were involved. 5 year survival for patients with metastasis is 54 % and 90 % for those with absent lymph node metastases.

Ploidy

Glands comprised of diploid cells seen in 75% of endometrial tumors. Diploidy is associated with non aggressive types, < 50% invasion, and grade I tumors. Diploidy is associated with high survival rates and the differences in progression-free survival among stage I patients have been as great as 94% for those with diploid tumors versus 64% for those with aneuploid cancers .

Steroid Receptors

Geisinger et al. noted that both ER and PR positivity is associated with better survival. Ehrlich et al., noted absence of ERs or PRs, causes decreased recurrence and better response to progesterone treatment. In contrast, assessment of steroid receptors in metastases may be helpful in the decision about appropriate therapy for recurrent tumors.

MOLECULAR ALTERATIONS IN THE PATHOGENESIS AND PROGRESSION OF ENDOMETRIAL ADENO CARCINOMA

The PTEN gene is located on chromosome 10q23.Deletions or mutations of the PTEN gene, and microsatellite instability (MSI) due to hypermethylation of the promoter for the mismatch repair gene, hMLH1, are both relatively common and occurs in 30% to 50% of endometrial carcinoma tumors which make this the most frequent genetic alteration known in this disease.(16,17,18)

Mutations in the p53 gene are found with high frequency not only in invasive serous carcinoma but also in endometrial intraepithelial carcinoma, the noninvasive precursor of serous

carcinoma, suggesting that a different pathway is followed in the development of the second type of endometrial adenocarcinoma. Mutations of the p53 gene often appears to be an early event in the development of serous carcinoma, but it is a late event in endometrioid carcinomas for which it serves as an indicator of poor prognosis. (26)

Overexpression of HER-2/neu a proto-oncogene is associated with poor prognosis. Nonendometrioid endometrial cancer showed a greater reduction in E-cadherin expression, upregulation of P-cadherin than endometrial cancers. Mutations in the K-ras oncogene have been reported in endometrioid cancer and also in endometrial hyperplasia, suggesting that K-ras activation may be an early event in the development of endometrioid carcinoma(24,25).

PRETREATMENT EVALUATION

After establishing diagnosis of endometrial carcinoma the patient should undergo a thorough evaluation. Physical examination is done to diagnose enlarged inguinal or supraclavicular lymph nodes, abdominal mass and areas of cancer spread to other pelvic organs. A chest radiograph is done to exclude metastasis and to evaluate the cardiopulmonary status of the patient. Other investigations like colonoscopy, cystoscopy, intravenous pyelography, and barium enema

is done if indicated by symptoms, on physical examination or by laboratory investigations. USG and MRI are used to diagnose myometrial invasion with several reports indicating a 75% to 90% accuracy rate. The only way to accurately diagnose the extent and depth of intrauterine invasion is by histologic examination of the hysterectomy specimen.

Serum levels of the antigenic determinant CA-125 is increased in case of distant metastatic cancer or advanced endometrial carcinoma . This observation was first reported by Niloff and others in 1984. Values exceeding 35 U/ml were found in stage IV or recurrent disease, although none with stage I disease had elevations . Mutivariate analysis showed lymph node metastasis had the most significant effect on the elevation of CA-125 levels (>40 U/mL). The sensitivity and specificity for screening lymph node metastasis were 78% and 84%, respectively. Hsieh et al.'s(15) data give evidence that preoperative CA-125 levels greater than 40 U/mL can be considered an indication for full pelvic and para -aortic lymphadenectomy in the surgical staging of endometrial carcinoma. If the initial value of CA-125 is elevated, serial measurements may help indicate response to tumor therapy.

Surgical Technique

Operative procedure is by midline vertical incision and followed by peritoneal fluid cytology, thorough exploration of intra-abdominal and pelvic organs, with excision or biopsy of any suspicious lesion. Uterus should be examined for serosal invasion. Total abdominal hysterectomy with Bilateral salpingo-oopherectomy is the primary surgery for endometrial carcinoma. . The plane of excision lies outside the pubocervical fascia and does not require unroofing of the ureters. The ovarian and fallopian tubes are removed en bloc with the uterus. Invasion of the myometrium may be more extensive microscopically than is evident visibly because of the characteristic infiltrative growth pattern of the tumor, although gross visual examination by the operating team of the cut uterine surface at the tumor site can accurately determine the depth of myometrial invasion in 91% of the patients.

Minimally Invasive Procedures

Laparoscopic lymph node dissection along with total laparoscopic hysterectomy is being used in many practices. Phase III trial evaluated laparoscopy for comprehensive surgical staging. Results indicate that 26% of patients needed conversion to laparotomy

because of poor visibility, metastatic cancer, bleeding, increased age, or increased body mass index. Significantly fewer postoperative adverse events and shorter hospitalization occurred with laparoscopy compared with laparotomy. However, laparotomy may still be required for certain clinical situations (such as elderly patients, those with a very large uterus) or certain metastatic presentations.

Robotic surgery is a new minimally invasive technology that has been advocated by some as being a feasible approach in the primary management of endometrial cancer. Costs for equipment and maintenance remain high.

Indications for retroperitoneal node sampling

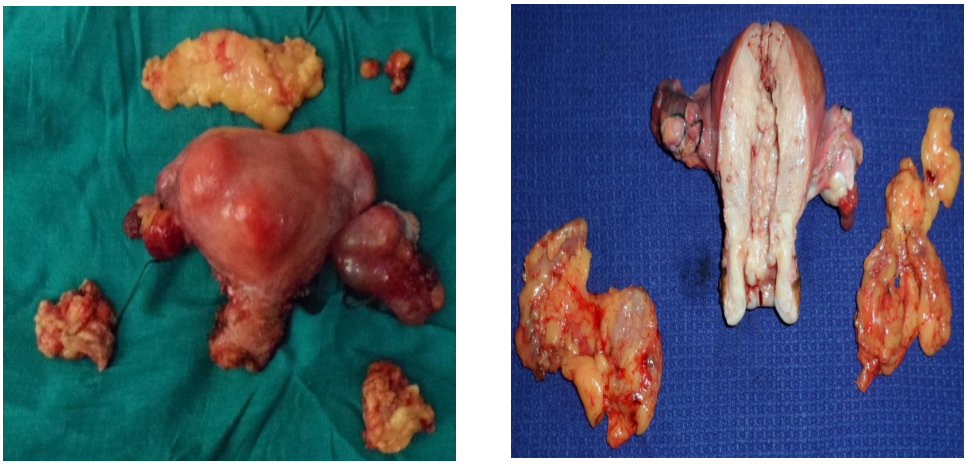
- Myometrial invasion more than 50%
- Isthmus-cervix extension
- Extrauterine spread
- Serous, clear-cell, squamous, or undifferentiated cell types
- Enlarged lymph nodes
- Grade III tumours

Lymph nodes need not be sampled for tumors limited to the endometrium, regardless of grade, because less than 1% of these patients have disease spread to pelvic or paraaortic lymph nodes.

Mayo criteria for omission of lymphadenectomy in surgical management of endometrial cancer.

Omit lymphadenectomy if no disease beyond the uterine corpus And (1) Endometroid grade 1 or 2, myometrial invasion ≤50%, and tumor diameter ≤2 cm Or (2) Endometroid and no myometrial invasion independent of grade and tumor diameter.

When indicated paraaortic nodal dissection is done through midline peritoneal incision over aorta and common iliac arteries. In some cases, pelvic lymph node sampling is indicated. Samples are taken from the distal common iliac nodes and from the superior iliac nodes. Another sample is taken from the obturator group of lymph nodes. Then the patient is staged according to the 2008 FIGO criteria.



Specimen of Surgical Staging showing TAH with BSO & bilateral lymphadenectomy

Primary Treatment

NCCN guidelines divides pure endometrioid carcinoma into the following categories:

1) Disease confined to the uterus,

2) Suspected or gross cervix involvement

3) Suspected extrauterine disease

Disease Limited To The Uterus (Stage I)

Most patients present with stage I disease and surgery with/ without adjuvant therapy is recommended for patients who are medically operable.

Medically Operable Patients

For the staging of a patient (if medically operable) with endometrioid histologies clinically confined to the fundal portion of the uterus, the recommended surgical procedure includes peritoneal lavage for cytology and total hysterectomy/ bilateral salpingo-oophorectomy (TH/BSO) with dissection of pelvic and para-aortic lymph nodes .

NCCN recommends complete surgical staging for all patients if they do not have medical contraindications to nodal dissection . Lymphadenectomy identifies those with nodal metastases to guide appropriate adjuvant treatment with RT and / or chemotherapy to improve survival .

Although all endometrial cancers are treated with hysterectomy, hormone therapy is considered for selected patients like.

1) Young women desiring fertility with atypical endometrial hyperplasia or grade 1 hyperplasia
2) Women who are poor candidates for surgery.

These patients have to be closely monitored by endometrial biopsies every 3-6 months.

Medically Inoperable Patients

For patients who are medically unfit for surgery tumor-directed RT is recommended. Hormonal therapy is given for patients with estrogen and progesterone receptor–positive status and if they are not candidates for RT or surgery. These patients are closely monitored with endometrial biopsies every 3-6 months. Medroxyprogesterone

acetate is used and has low toxicity. Tamoxifen and aromatase inhibitors have also been used.

Suspected or Gross Cervical Involvement (STAGE II)

Patients who have suspected or gross cervix involvement cervix biopsy or MRI is done. If it is negative, disease is assumed to be limited to the uterus and are treated as STAGE I.

Operable Stage II patients are treated with radical hysterectomy along with BSO, cytology (peritoneal lavage), and pelvic and para-aortic lymph nodes dissection as it may be difficult to differentiate stage II endometrial cancer fom primary cervix cancer. In these patients, radical hysterectomy may improve local control and survival when compared with total hysterectomy. Alternatively, the patient may undergo RT followed by TH/BSO with para-aortic lymph node dissection.

For patients who are medically unfit for surgery, tumor-directed RT controls local recurrence and improves survival.

Adjuvant Therapy for Stage I and II

Complete surgical staging gives information to select adjuvant therapy for endometrial tumors. Stage I endometrial carcinoma, who

are completely surgically staged are assessed by adverse risk factors like age, lymphovascular space invasion [LVSI], increased tumor size, and spread to lower uterine [cervical/glandular] segment .

Adjuvant RT

Phase III trials have studied adjuvant therapy in patients with stage I disease. Adjuvant RT improves pelvic control in patients with risk factors though it did not improve overall survival. Adverse intrauterine pathologic risk factors include high-grade tumors, deep myometrial invasion and consequently more advanced stage, LVSI, and papillary serous or clear cell histologies. The Keys' trial (GOG 99) showed that adjuvant pelvic RT improved locoregional control and relapse-free interval (progression-free survival), without overall survival benefit. Both the GOG 99 and PORTEC-1 trials revealed that most of the initial recurrences for stage I occurred in vagina which lead to increased use of vaginal brachytherapy alone. PORTEC-2 showed equal control rates with both whole pelvic RT and vaginal brachytherapy approaches, and there is no difference in survival. Since vaginal brachytherapy is associated with less toxicity, stage I disease is treated with brachytherapy alone.

Adjuvant Chemoradiation

Patients with stage IB, grade 3 have a relatively poor prognosis. Despite adjuvant therapy with pelvic RT, a significant number of patients continue to have an appreciable risk of distant metastases. In these cases, progression-free survival is improved with adjuvant sequential chemoRT.

` Adjuvant treatment for stage IA, IB:

Stage	Adverse risk factors[a]	Grade		
		1	2	3
IA	Not present	Observe	Observe or brachytherapy	Observe or brachytherapy
	Present	Observe or brachytherapy	Observe or brachytherapy ± WPRT (category 2B)	Observe or brachytherapy ± WPRT
IB	Not present	Observe or brachytherapy	Observe or brachytherapy	Observe or brachytherapy ± WPRT
	Present	Observe or brachytherapy ± WPRT	Observe or brachytherapy ± WPRT	WPRT ± brachytherapy ± chemotherapy (category 2B) or observe (category 2B)

[a]Risk factors: age >60; lymphovascular space invasion (LVSI); Tumor size >2 cm; lower uterine (cervical/glandular) involvement.
WPRT: whole pelvic radiation therapy.

Adjuvant treatment for stage II, IIIA:

Stage	Grade		
	1	2	3
II	Brachytherapy ± WPRT	WPRT + brachytherapy	WPRT ± brachytherapy ± chemotherapy (category 2B)
IIIA	Chemotherapy ± WPRT or tumor-directed RT ± chemotherapy or WPRT ± brachytherapy	Chemotherapy ± WPRT or tumor-directed RT ± chemotherapy or WPRT ± brachytherapy	Chemotherapy ± WPRT or tumor-directed RT ± chemotherapy or WPRT ± brachytherapy

WPRT: whole pelvic radiation therapy; RT: radiation therapy.

Suspected Extrauterine Disease (STAGE III AND IV)

If extrauterine disease (endometrioid histologies) is suspected, imaging studies is done if indicated clinically. Patients with no extrauterine disease are treated as STAGE I.

Spread of carcinoma to omentum, nodes, adnexa, or peritoneum is treated with surgical staging and optimal debulking. Unresectable disease spread to extrauterine pelvic sites like vagina, small bowel, rectum, bladder, or parametrium are treated with pelvicRT and brachytherapy with /without chemotherapy. Distant spread like liver involvement is treated with palliative TAH/BSO with/without chemotherapy, Radiotherapy, and/or hormonal therapy.

ADJUVANT THERAPY FOR STAGE III /IV

Spread of carcinoma to extrauterine sites is associated with increased risk for recurrence and hence given adjuvant therapy. Pelvic or extended-field RT is given to patients with spread of the disease to the lymph nodes or the adnexa. However, chemotherapy is regarded as the foundation of adjuvant therapy for patients with extrauterine disease. Previously, whole abdominal RT was used for carefully selected patients deemed at risk for peritoneal failure.

But GOG trial reported that AP chemotherapy improved progression-free survival and overall survival when compared with whole abdominopelvic RT; however, acute toxicity (eg, peripheral neuropathy) was greater in the AP chemotherapy arm.

Incomplete Surgical Staging

For patients with incomplete surgical staging, radiologic imaging is often recommended, especially in patients with higher grade and more deeply invasive tumors. Surgical restaging, including lymph node dissection, can also be done. Based on the radiologic and/or surgical restaging results, recommended treatment options are available.

Principles of Adjuvant Radiotherapy

RT has been a widely used modality in the treatment of patients with endometrial cancer; it clearly improves locoregional control. Tumor-directed *RT* refers to RT directed at sites of known or suspected tumor involvement and may include external-beam RT and/or brachytherapy. Although adjuvant RT is typically not associated with high rates of severe morbidity, recent studies have

focused on subtle effects on quality of life (eg, diarrhea, bowel symptoms) that deserve further investigation.

Principles of adjuvant Chemotherapy for Metastatic, Recurrent, or High-Risk Disease

Multiagent chemotherapy regimens are preferred for metastatic, recurrent, or high-risk disease, if tolerated. Single-agent therapy can also be used. A phase III randomized trial compared 2 combination chemotherapy regimens in women with advanced/metastatic or recurrent endometrial carcinoma. The 3-drug regimen (cisplatin, doxorubicin, and paclitaxel) was associated with improved survival (15 versus 12 months, $P < .04$) but with significantly increased toxicity (ie, peripheral neuropathy). For patients in whom paclitaxel is contraindicated, docetaxel can be considered in combination with carboplatin. If multiagent chemotherapy regimens are contraindicated, then single-agent therapy options include cisplatin, carboplatin, paclitaxel, doxorubicin, liposomal doxorubicin, and docetaxel. Some oncologists have used liposomal doxorubicin, because it is less toxic than doxorubicin; the response rate of liposomal doxorubicin is 9.5%. Recently, bevacizumab was shown to have a 13.5% response rate and overall survival rate of 10.5 months in a phase II trial for persistent or

recurrent endometrial cancer. The panel recommends bevacizumab as single-agent therapy for patients who have progressed on previous cytotoxic chemotherapy.

Hormone Replacement Therapy for Hypoestrogenism

After bilateral salpingo-oophorectomy, hypoestrogenism is associated with hot flushes, mood instability, osteoporosis, vaginal dryness, pelvic floor atrophy, and risk of cardiovascular disease. In postmenopausal women, hormone replacement therapy was believed to decrease the signs and symptoms. However, women who have had bilateral salpingo-oophorectomy for endometrial adenocarcinoma are not given hormone replacement therapy due to a high relpase rate . In women with stage I-II endometrial cancer who had hysterectomy, a randomized trial of estrogen replacement therapy versus placebo did not find an increased rate of recurrence or new malignancy. There should be a 6- to 12-month interval between adjuvant therapy and hormone replacement therapy. Selective estrogen-receptor modulators (SERMs) may prove to be attractive options for hormone replacement therapy.

Serous And Clear-Cell Histologies

Uterine papillary serous carcinomas , clear cell carcinomas and carcinosarcomas are very aggressive histologic variants of epithelial carcinoma, with a high incidence of spread to extrauterine sites. Patients may present with pelvic masses, abnormal cervical cytology, or ascites in addition to postmenopausal bleeding. Both the NCCN panel and the SGO recommend that CA 125 and MRI/CT may be useful before surgery to assess if extrauterine disease is present. Papillary serous carcinomas, clear cell carcinomas, and carcinosarcomas are all considered high-risk tumors (ie, grade 3), although they are staged using the same FIGO/AJCC staging system as endometrial cancers. Multimodality therapy is recommended for these tumors. Primary treatment includes staging laprotomy and maximal tumor debulking. For patients with stage IA without myometrial invasion, options include 1) observation; 2) chemotherapy; or 3) tumor-directed RT. For all other patients with more advanced disease, chemotherapy with (or without) tumor-directed RT is the preferred option than RT alone. Adjuvant platinum/taxane-based therapy appears to improve survival in patients

with uterine papillary serous carcinoma and clear cell carcinoma, whereas ifosfamide/paclitaxel is recommended for carcinosarcomas.

Carcinosarcomas (Malignant mixed mullerian tumours)

Carcinosarcomas are aggressive tumors that are staged as high-grade endometrial cancer. Pathologists now believe that carcinosarcomas (MMMTs) are metaplastic carcinomas and not uterine sarcomas; therefore, the NCCN panel recently moved carcinosarcomas to the epithelial carcinoma guideline . Ifosfamide was historically considered the most active single agent for carcinosarcoma. A phase III trial for advanced carcinosarcoma showed that the combination of ifosfamide and paclitaxel increased survival and was less toxic than the previously used cisplatin/ifosfamide regimen.

Post-Treatment Surveillance

50%-70% of patients have symptomatic recurrences within 3 years of initial treatment. Hence surveillance is carried as follows.

Physical examination every 3-6 months for 2 years, then 6 months or annually.

Patient has to be educated regarding symptoms. CA-125 measurement is optional. Chest x-ray is taken annually. CT/MRI is done if clinically indicated.

Consider genetic counselling/testing for young patients (<55years) with a significant family history and/or selected pathologic risk features.

MATERIALS AND METHODS

The clinicopathological study of endometrial carcinoma was conducted at Institute of Obstetrics and Gynaecology, Egmore, Chennai. It was conducted from June 2011 to December 2013 for a period of 30 months .A prospective review of 62 patients who underwent therapy for endometrial carcinoma was conducted.

INCLUSION CRITERIA

Perimenopausal and postmenopausal women who presented with clinical features , imaging features and histopathological findings suggestive of endometrial carcinoma registered in medical oncology department, Institute of Obstetrics and Gynaecology from 1.6. 2011 to 1.6.2013

EXCLUSION CRITERIA

1. Secondary tumors of endometrium from ovary and cervix
2. Recurrent endometrial carcinoma
3. Endometrial carcinoma presenting as emergencies

METHODOLOGY

All patients who were diagnosed to have endometrial carcinoma by dilatation and curettage or detected after surgery by histopathological examination are enrolled in the study. Their clinical profile was analyzed for various demographic details, presenting signs and symptoms, menstrual history, associated medical disorders and family history .Their height, weight were noted and BMI was calculated. Clinical examination findings and results of Pap smear, CA 125, USG, CT or MRI and dilatation and curettage were tabulated. Details of surgical procedure and intraoperative findings were recorded. Patients were then staged as per FIGO staging and histopathological features were documented. Patients were then either observed as in stage I A or given appropriate adjuvant therapy post operatively with vaginal brachytherapy or chemoradiation. for other stages. All patients were followed throughout the study. Data were entered into a standard proforma and analyzed. Survival was analysed using life table curves and statistical significance was tested using log rank test.

OBSERVATIONS AND RESULTS

This descriptive study was conducted in the INSTITUTE OF OBSTETRICS AND GYNAECOLOGY for a period of 30 months among the patients who were diagnosed to have endometrial carcinoma. There were a total of 62 patients during the study period and they were analyzed as follows.

TABLE 1: AGE WISE DISTRIBUTION OF PATIENTS

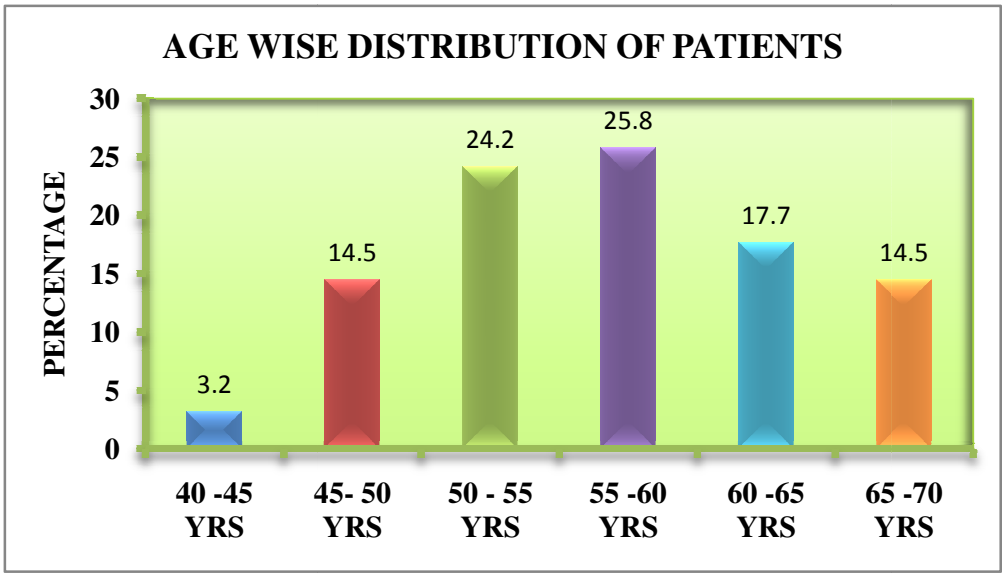
AGE (YEARS)	NO. OF CASES	PERCENTAGE
< 45	2	3.2
45- 50	9	14.5
50 - 55	15	24.2
55 -60	16	25.8
60 -65	11	17.7
>65	9	14.5
Total	62	100.0

TABLE 2: SOCIO ECONOMIC STATUS

SOCIO ECONOMIC STATUS	NO. OF CASES	PERCENTAGE
I	0	0
II	1	1.6
III	8	12.9
IV	30	48.38
V	23	37.09

Average age at diagnosis was 55.73 years. Minimum age was 40 years and maximum was 70 years.

FIGURE 1



This diagram illustrates that 82.2 % patients were above 50 years of age.

FIGURE 2

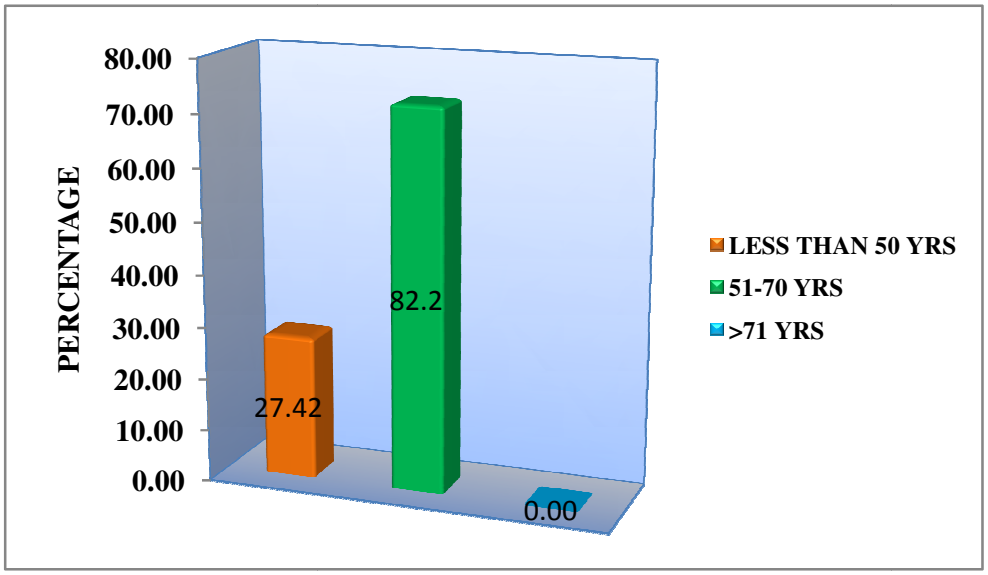


TABLE 3 : AGE AT MENARCHE

	NO OF CASES	PERCENTAGE
>13 years	47	75.8
<13 years	15	24.2
Total	62	100.0

Percentage of cases who attained menarche less than 13 years was calculated and it accounted to about 24.2% of cases

FIGURE 3

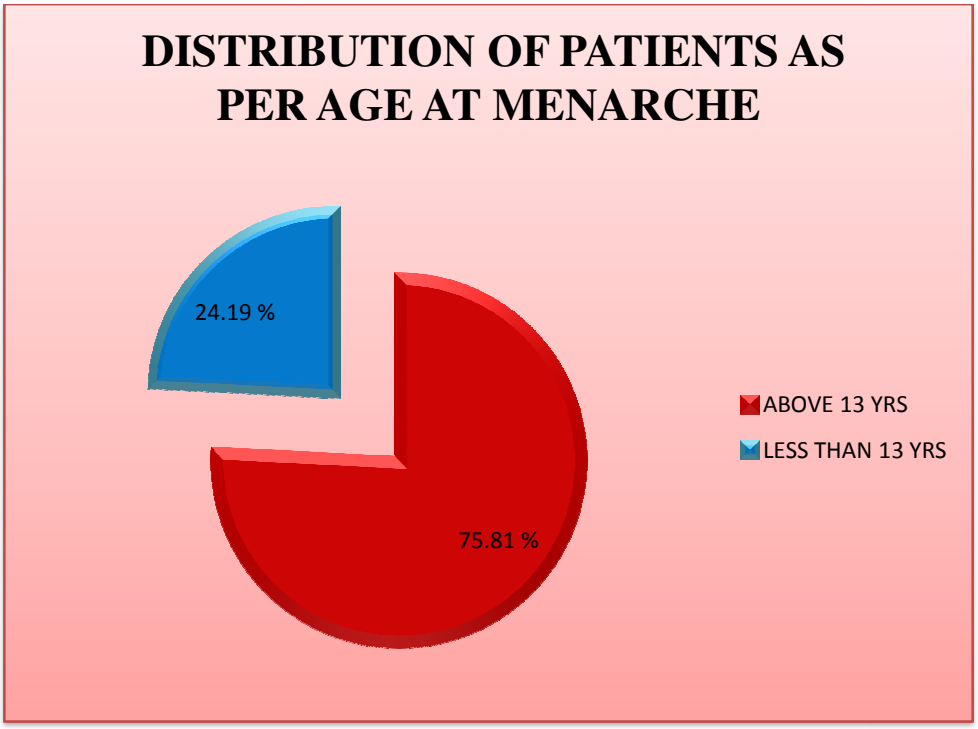


TABLE 4: MENSTRUAL CYCLES

	NO OF CASES	PERCENTAGE
Irregular	25	40.3
Regular	37	59.7
Total	62	100.0

Among total 62 cases , 40.3% had irregular cycles and 59.7% had regular cycles.

FIGURE 4

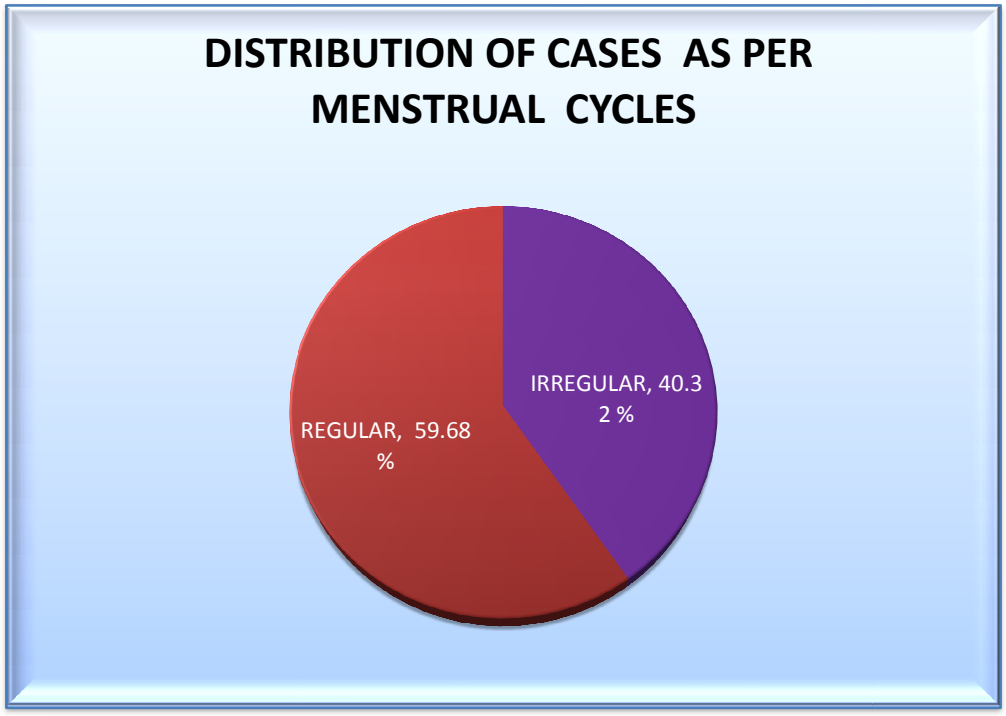


TABLE 5: AGE AT MENOPAUSE

AGE AT MENOPAUSE	NO. OF CASES	PERCENTAGE
<52 yrs	32	51.6
> 52 yrs	18	29.0
Not Attained	12	19.3
Total	62	100.0

Among 62 cases , 12 cases did not attain menopause. Of the 50 cases who attained menopause, 51.6 % attained at age less than 52 years and 29.0% attained after 52 years.

FIGURE 5

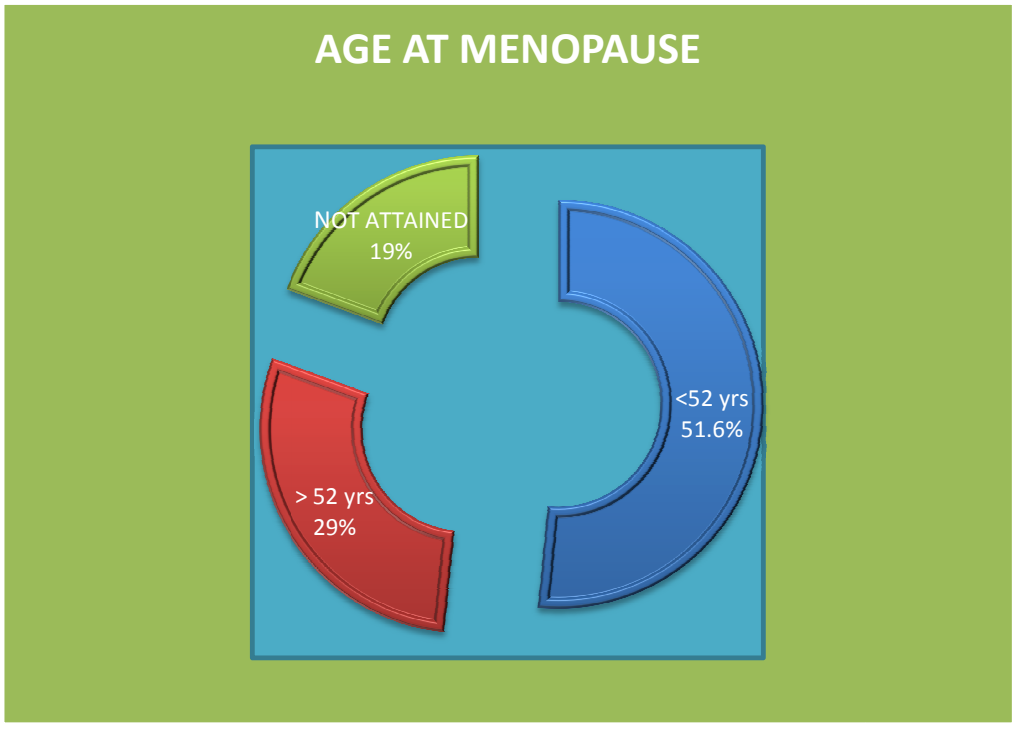


TABLE 6: PARITY

	NO OF CASES	PERCENTAGE
Multiparous	53	85.5
Nulliparous	9	14.5
Total	62	100

Among 62 cases, 53 cases were multiparous women and 9 cases were nulliparous .

FIGURE 6

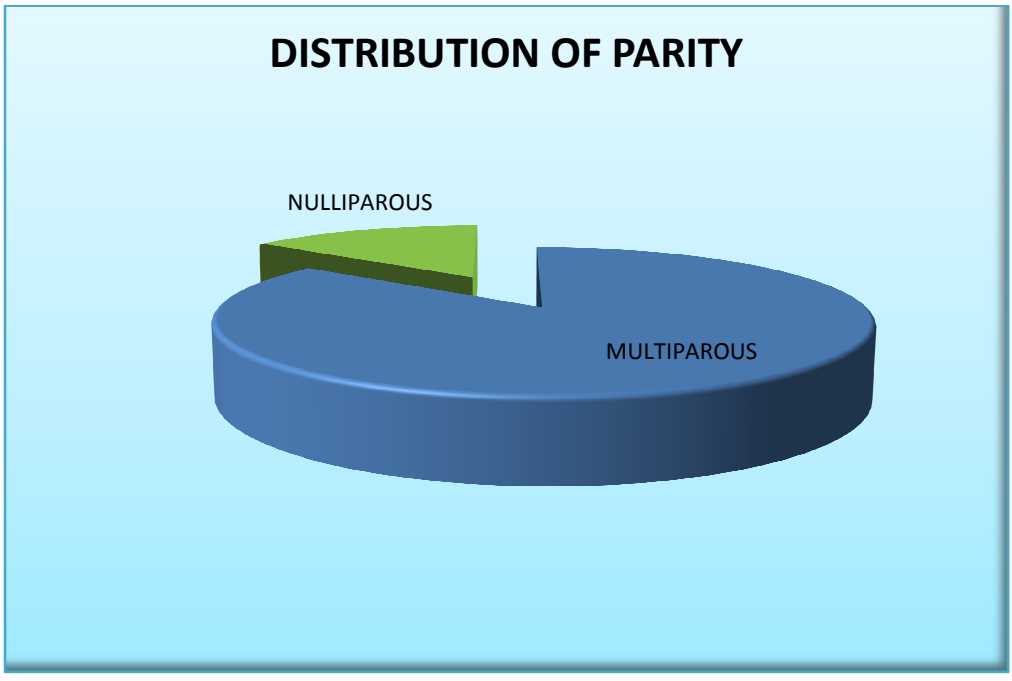
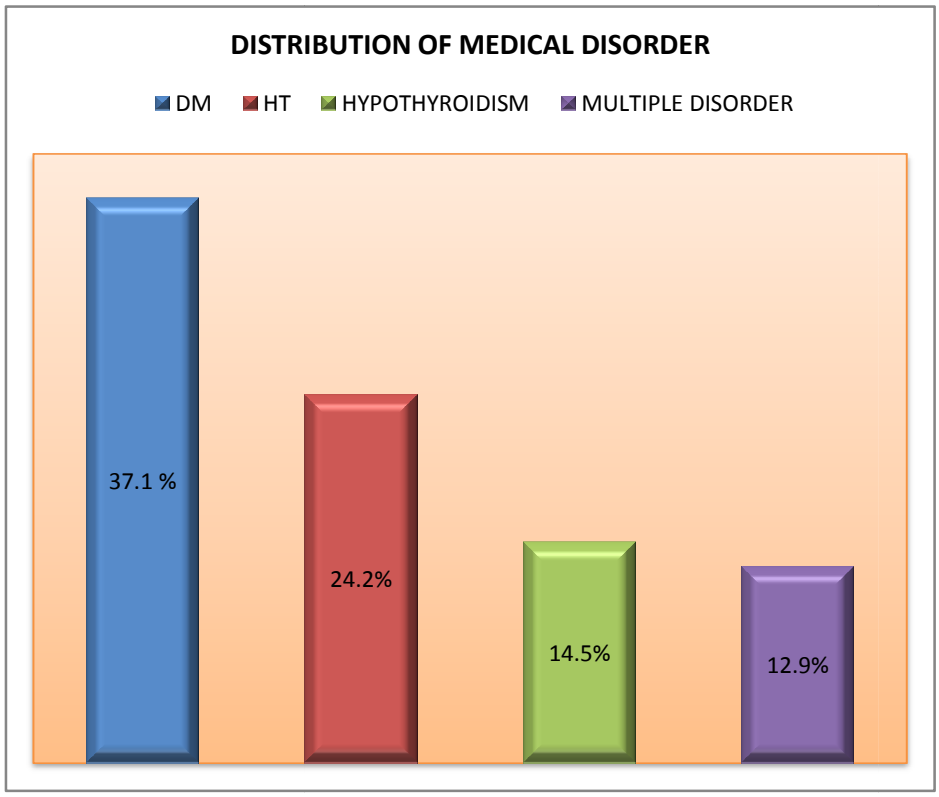


TABLE 7: DISTRIBUTION OF MEDICAL DISORDERS

MEDICAL DISORDERS	NO.OF CASES	PERCENTAGE
Diabetes Mellitus	23	37.1
Hypertension	15	24.2
Hypothyroidism	9	14.5
Multiple Disorders	8	12.9
No disorder	26	41.1

FIGURE 7

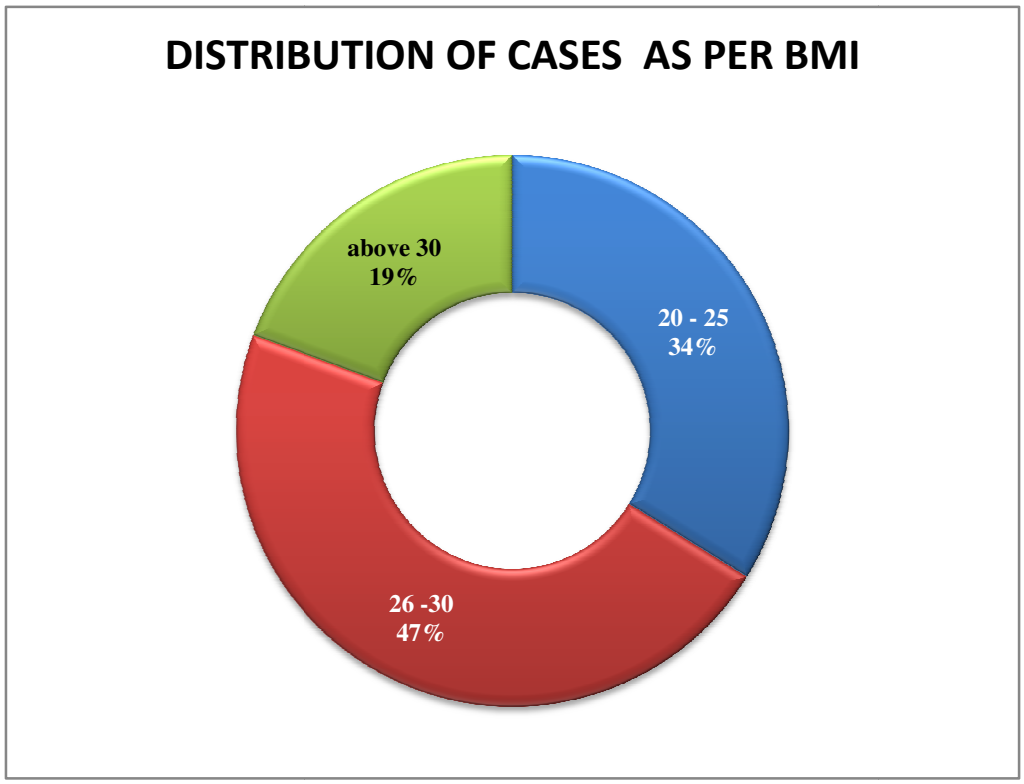


In this study 37.1% of cases had diabetes mellitus, 24.2% had hypertension and 14.5% had hypothyroidism. 12.9 % had more than one of the above disorders.

TABLE 8 : DISTRIBUTION AS PER BMI

BMI	NO. OF CASES	PERCENTAGE
20 - 25	21	33.87
26 -30	29	46.77
Above 30	12	19.35
Total	62	100.0

FIGURE 8



Of the 62 cases, 29 cases were overweight and 12 were obese.

TABLE 9: DISTRIBUTION OF CASES AS PER PRESENTING SYMPTOMS

SYMPTOM	NO. OF CASES	PERCENTAGE
Post menopausal bleeding	35	56
Peri menopausal bleeding	12	19.3
Vaginal discharge	17	27.4
Pain	13	20.9
Loss of weight /appetite	5	8.06

Postmenopausal bleeding is the most common symptom present in 56% of patients followed by perimenopausal bleeding in 19.3% .

FIGURE 9

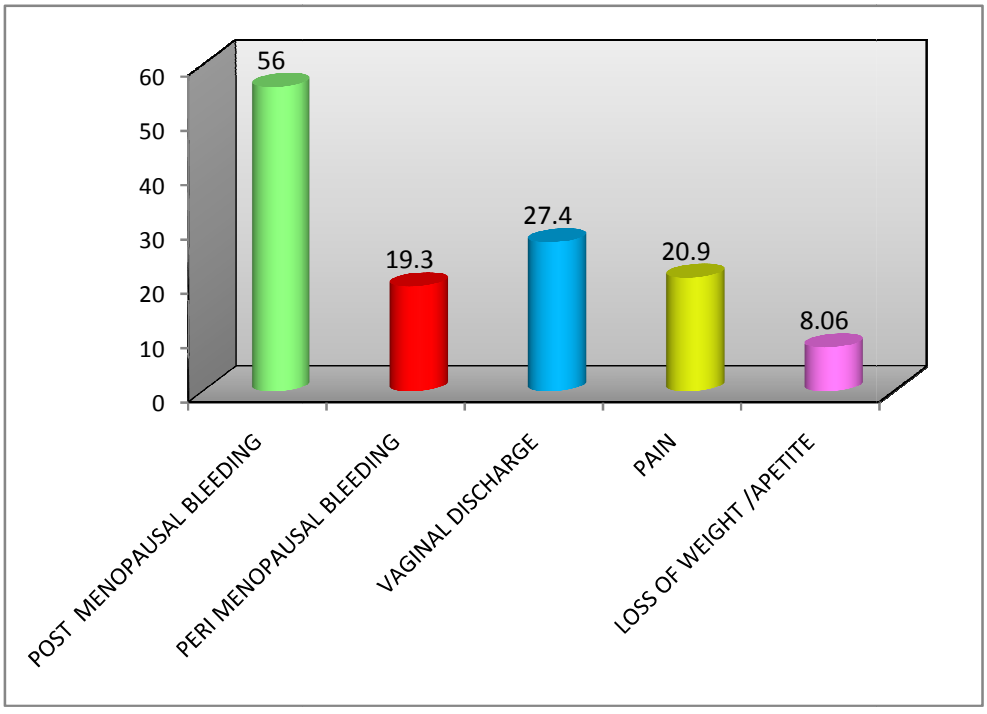


TABLE 10 : DISTRIBUTION AS PER VAGINAL EXAMINATION

CLINICAL FINDING	NO, OF CASES	PERCENTAGE
Bulky uterus	30	48.4
Normal size	20	32.2
More than 10 weeks size	5	8. 0
Atrophic	3	4.8
Size not made out	2	3.2
Adnexal mass	2	3.2
Total	62	100.0

On vaginal examination, about 48.4 % had bulky uterus while 33.9% had normal sized uterus. About 4.8 % cases had atrophic uterus. Due to obesity exact size of uterus could not be made out in 2 cases.

TABLE 11 : CA 125

CA 125	NO. OF CASES	PERCENTAGE
>35	2	25
<35	6	75
Total	8	100

CA 125 was done only in 8 cases. of the 8 , 2 cases levels > 35 U/ml accounting to about 25 %. remaining 6 cases (75%) had <35 U/ml.

TABLE 12: PAP SMEAR

FINDING	FREQUENCY	PERCENTGAE
Negative for sil	47	82.4
Inflammatory smear	9	15.7
Ascus	1	1.7
Total	57	100.0

Pap smear was done for all patients except for 5 cases who had bleeding. Of the 57 cases for whom Pap smear was done 47 cases(82.4%) were negative for SIL, 9 (15.7%) cases had inflammatory smear and 1 (1.6%) had ASCUS.

FIGURE 10

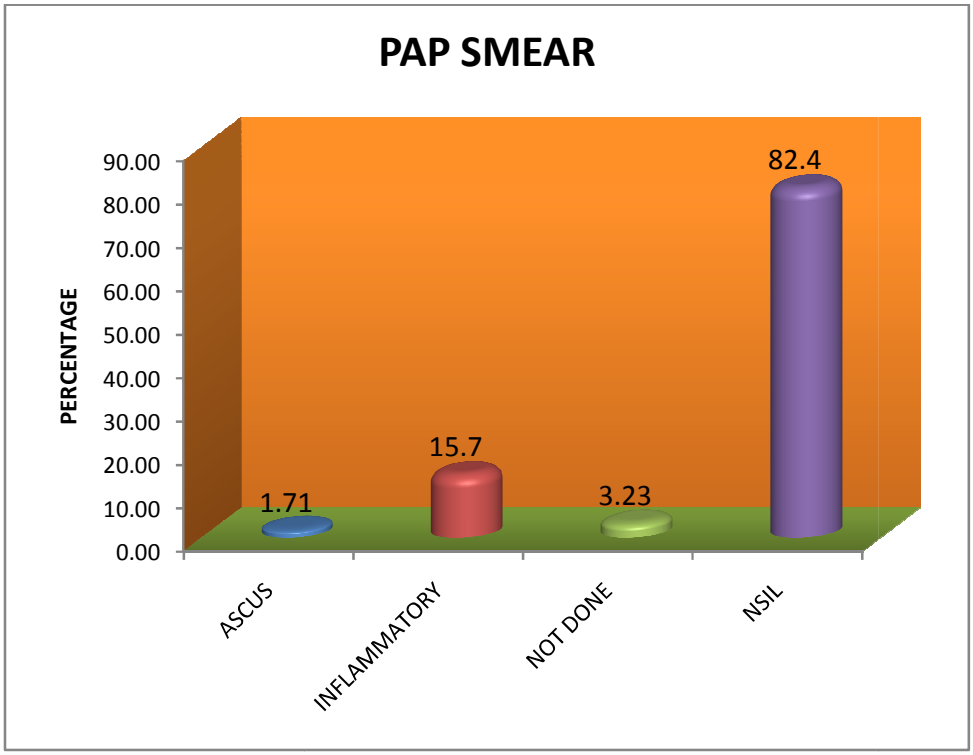


TABLE 13: ULTRASOUND

FINDING	NO.OF CASES	PERCENTAGE
Thickened endometrium	61	98.3
Fibroid	8	12.9
Mass	5	8.1
Normal	1	1.6
Polyp	1	1.6

In ultrasound , thickened endometrium was found in 98.3% , fibroid was diagnosed in 12.9% and mass was detected in 8.1% of cases

FIGURE 11

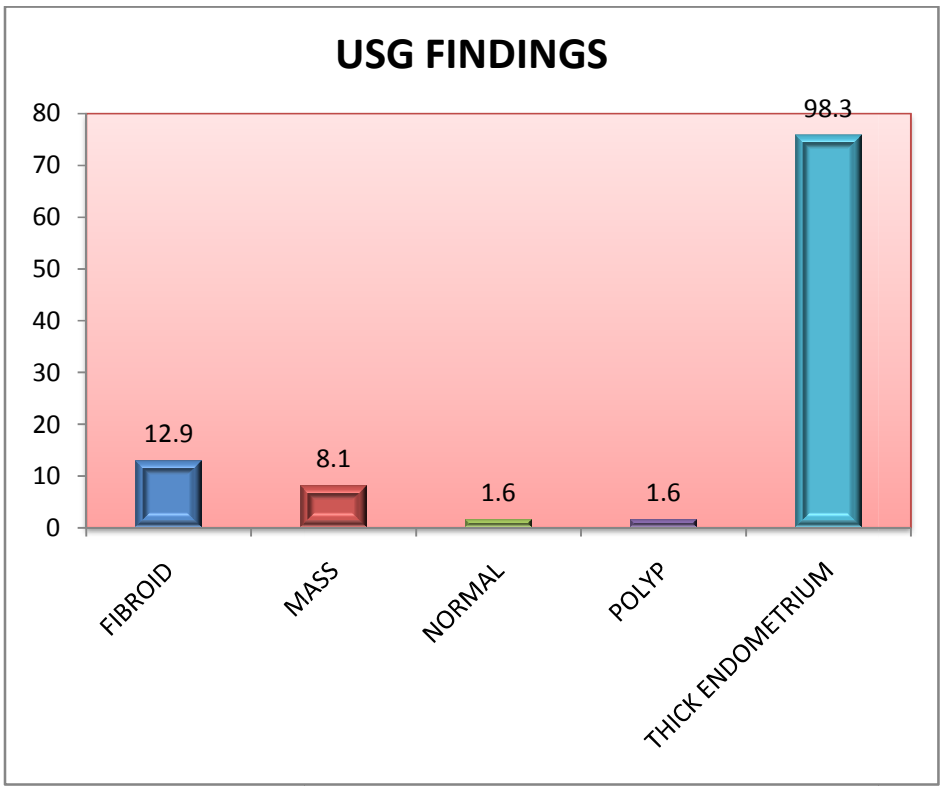


TABLE 14: FINDINGS FROM CT

FINDING	NO.OF CASES	PERCENTAGE
Mass	16	50%
Thickened endometrium	12	37.5%
Fluid collection	3	9.37%
Nodes	3	9.37%
Normal	2	6.25%
Rectal invasion	1	3.1%
Omental deposits	1	3.1%

CT scan was done in 32 cases. The most common finding was endometrial mass in 16 cases which is about 50 %, followed by thickened endometrium in about 37.5 % cases. Fluid collection was seen in 9.37 % of cases and nodes were diagnosed in about 9.37% of cases. Rectal invasion and omental deposits was diagnosed in one case each.

FIGURE 12

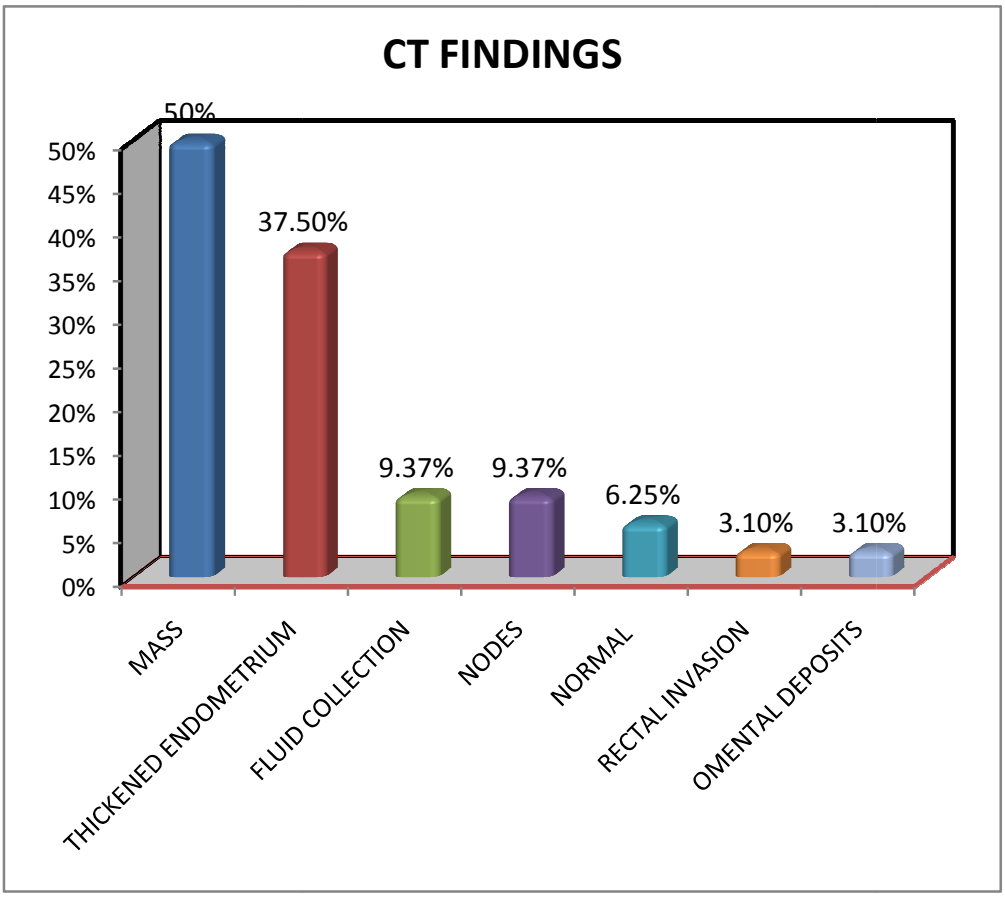

CT FINDINGS
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
50%
37.50%
9.37%
9.37%
6.25%
3.10%
3.10%
MASS
THICKENED ENDOMETRIUM
FLUID COLLECTION
NODES
NORMAL
RECTAL INVASION
OMENTAL DEPOSITS

TABLE 15: DISTRIBUTION AS PER FINDINGS IN FRACTIONAL CURETTAGE

FINDINGS	NO.OF CASES	PERCENTAGE
Endometrioid Adenocarcinoma	48	77.4
Villoglandular Carcinoma	4	6.5
Papillary Serous Carcinoma	1	1.6
Complex Atypical Hyperplasia	2	3.2
Endometrial Intraepithelial Neoplasia	1	1.6
Endometrial Stromal Sarcoma	2	3.2
Proliferative phase	3	4.8
Post menopausal state	1	1.6
Total	62	100%

FIGURE 13

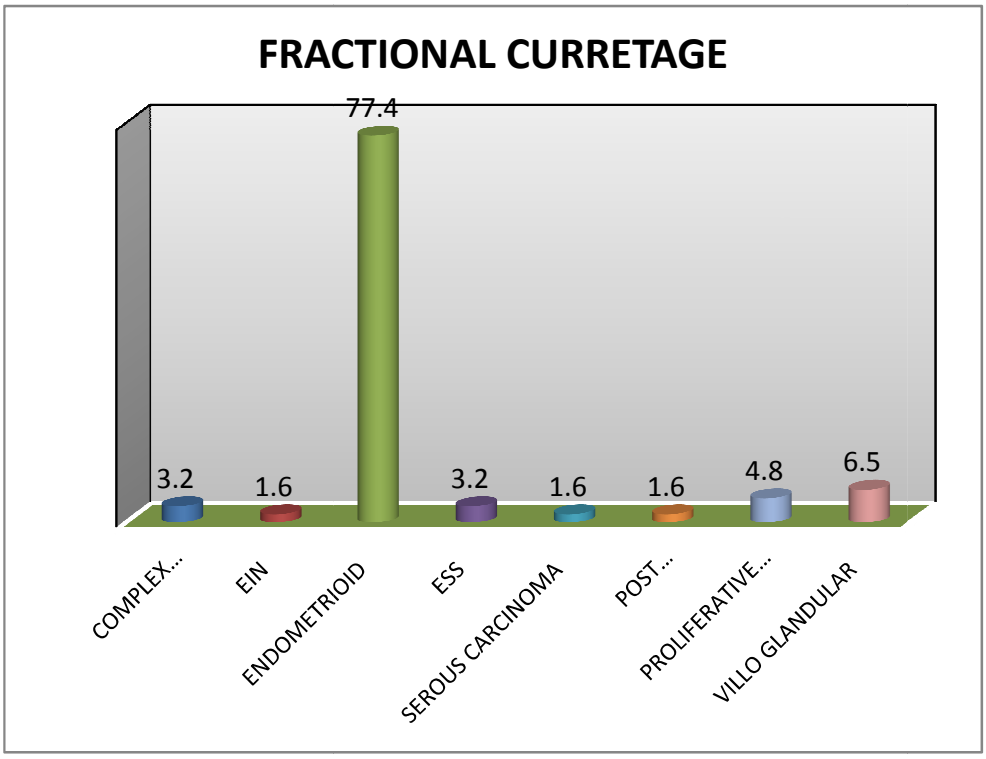


TABLE 16: DISTRIBUTION OF CASES AS PER SURGERY DONE

SURGERY	NO. OF CASES	PERCENTAGE
TAH With BSO	45	72.6
Staging laprotomy	16	25.8
Not done	1	1.6
Total	62	100.0

FIGURE 14

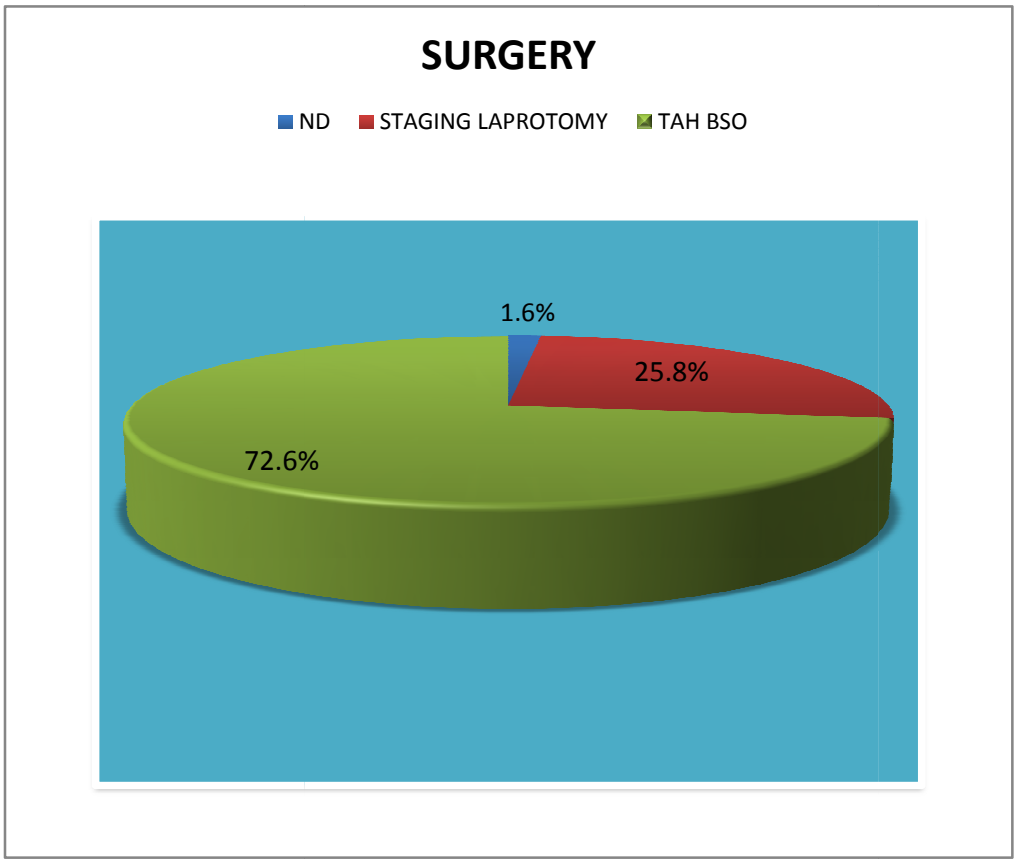


TABLE 17: DISTRIBUTION OF CASES ACCORDING TO HISTOLOGIC TYPE

HISTOLOGIC TYPE	NO.OF CASES	PERCENTAGE
Endometroid Adenocarcinoma	60	96.77
Clear Cell Carcinoma	1	1.6
Not Available	1	1.6
Total	62	100.0

Among the 62 cases studied 60 cases were endometrioid adenocarcinoma accounting to 96.77% and one was clear cell carcinoma type contributing to 1.6 %. 5 cases of Villoglandular variant contributed to 8.3 % of the total endometrioid carcinoma. One case had synchronous endometrioid tumour of ovary and uterus and another patient had incidental thecoma of ovary.

FIGURE 15

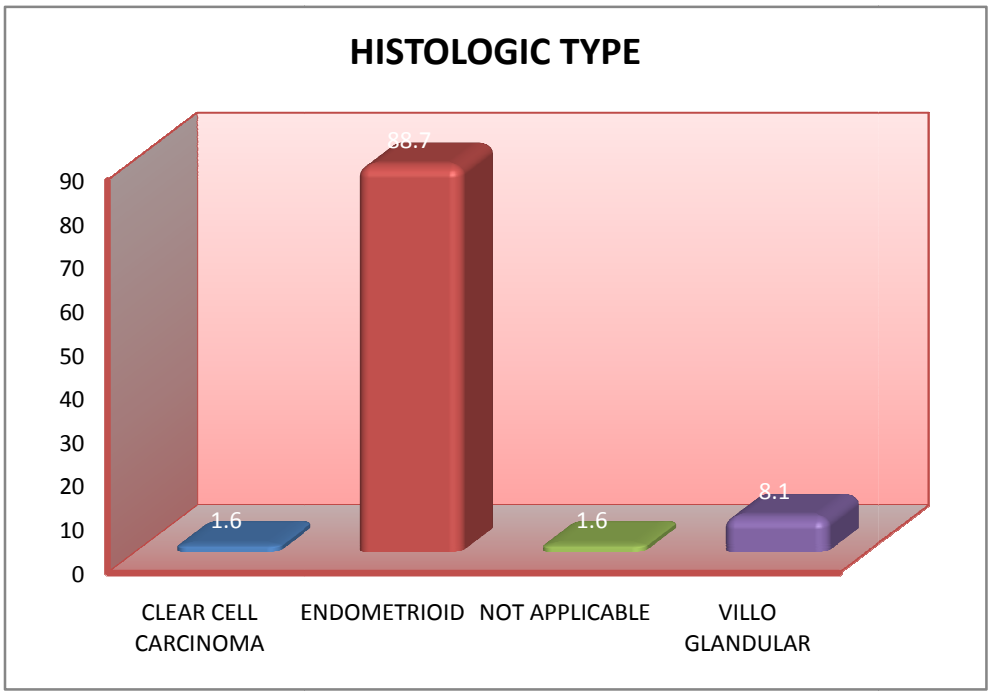


FIGURE 16

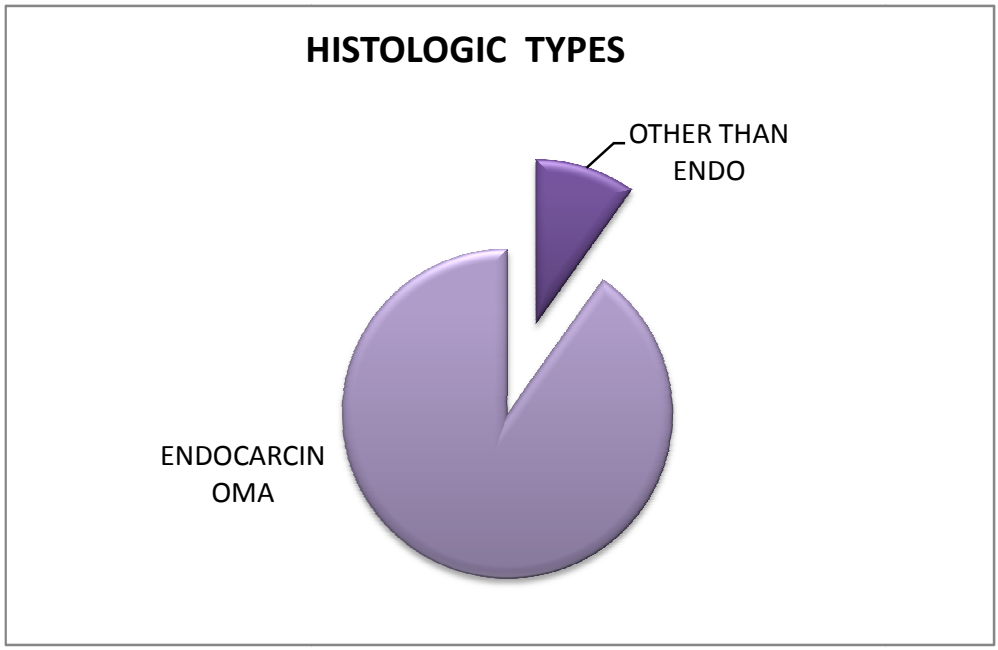


TABLE 18: DISTRIBUTION OF CASES AS PER GRADE OF TUMOUR

GRADE	NO.OF CASES	PERCENTAGE
I	36	58.1
II	15	24.1
III	10	16.1
Not Available	1	1.6
Total	62	100.0

Of the 62 cases, 36 were of grade I which is about 58.1 %, 15 cases were grade II accounting to about 24.1% and 10 were Grade III which is about 16.1%.

FIGURE 17

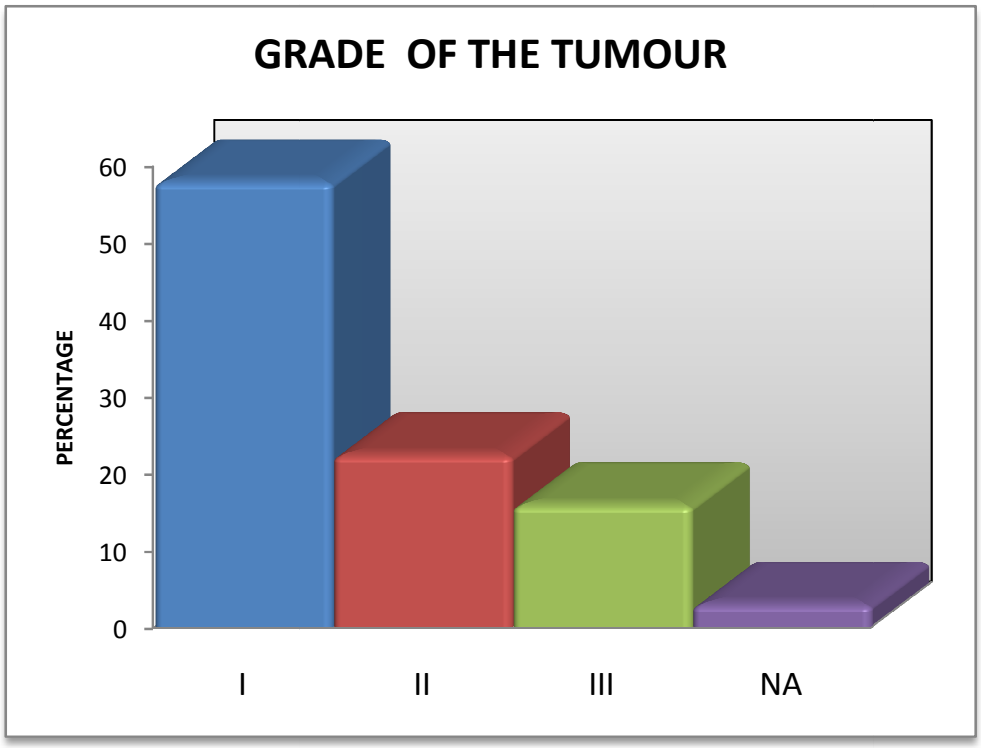


TABLE 19: DISTRIBUTION AS PER DEPTH OF MYOMETRIAL INVASION

DEPTH OF MYOMETRIAL INVASION	NO.OF CASES	PERCENTAGE
<50 %	34	55.73
>50 %	27	44.26
Total	61	100

55.73% of cases in our study had <50% Myometrial Invasion while 44.26% had >50% Myometrial Invasion.

FIGURE 18

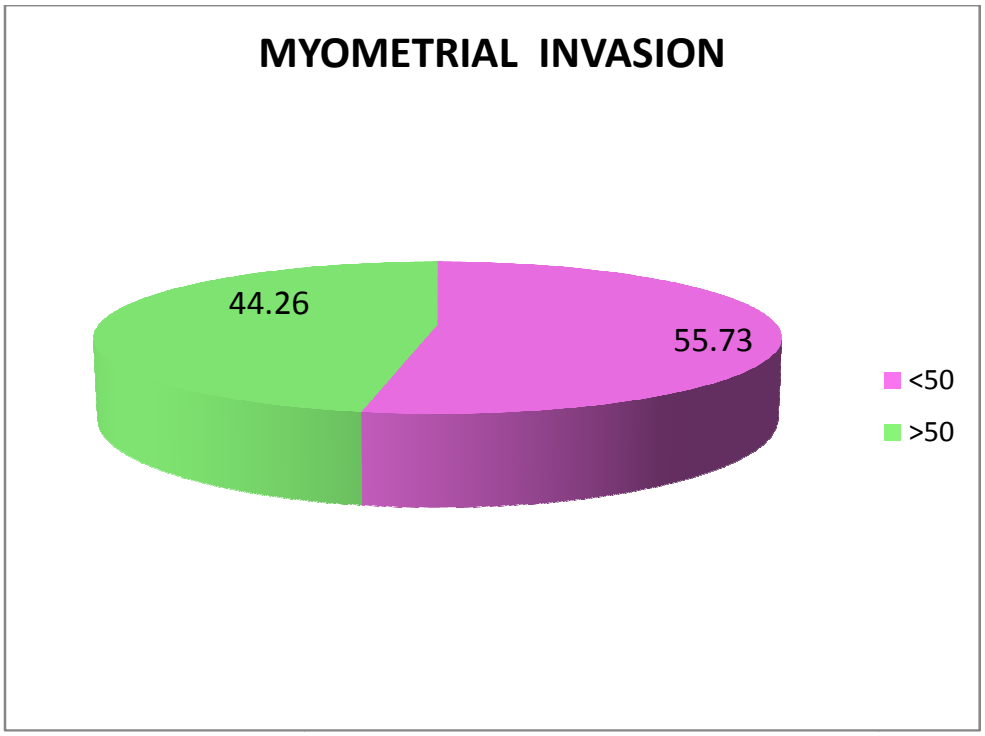


TABLE 20: DISTRIBUTION OF SITES OF EXTRA UTERINE SPREAD

SITE OF EXTRAUTERINE SPREAD	FREQUENCY	PERCENTAGE
Nodes	3	25
Adnexa	2	16.6
Omental deposits	2	16.6
Cervix	2	16.6
Positive peritoneal cytology	1	8.3
Rectal invasion	1	8.3
Serosal invasion	1	8.3

Among extrauterine spread nodes contributed to about 25%, adnexa, omentum and cervix were involved in 16.6% each.

FIGURE 19

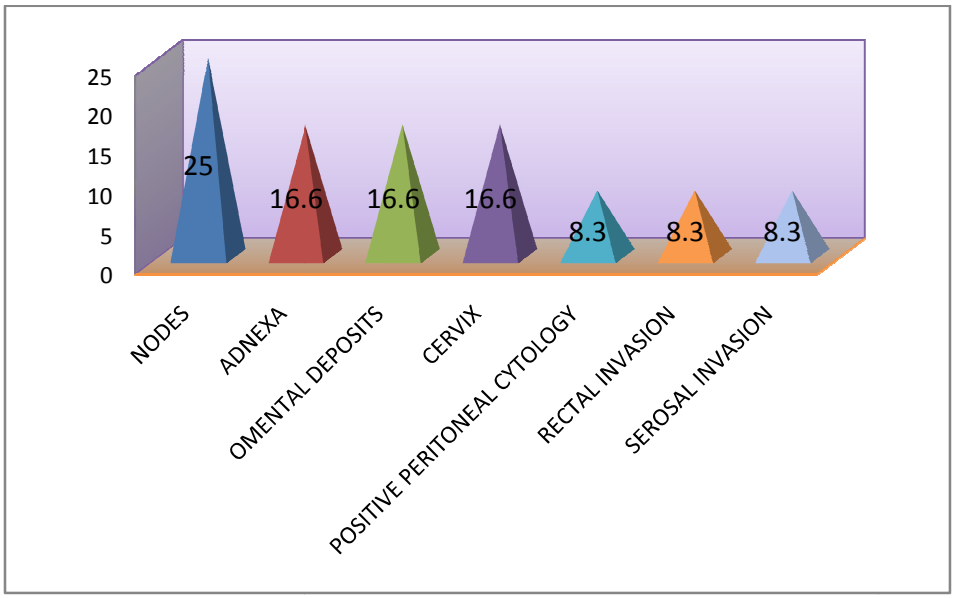
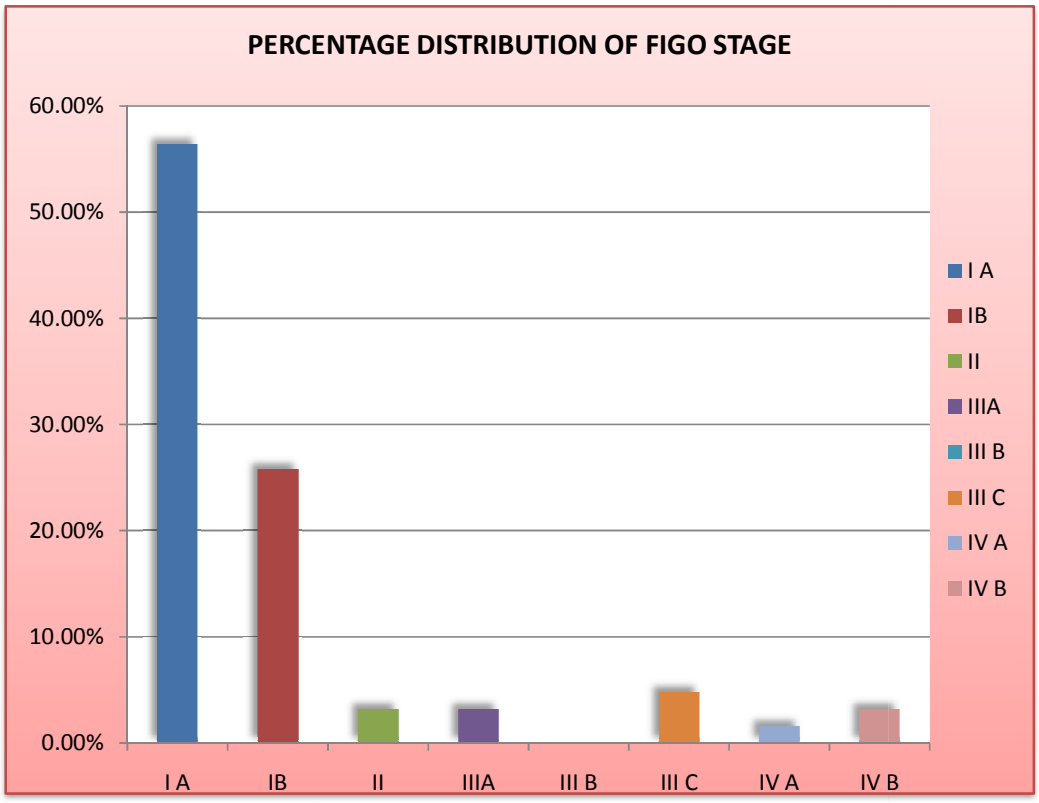


TABLE 21 : DISTRIBUTION OF CASES AS PER FIGO STAGE

STAGE	FREQUENCY	PERCENTAGE
I A	35	56.4
IB	16	25.8
II	2	3.2
IIIA	2	3.2
III B	0	0
III C	3	4.8
IV A	1	1.6
IV B	2	3.2

FIGURE 20



DISCUSSION

Age

Minimum age of endometrial carcinoma reported in the present study was 40 years and maximum was 70 years. The average age of occurrence of endometrial carcinoma is 55.73 years. This is very close to the average age reported by various authors that is 60 years. Indeed it occurs at a younger age in our population.

Various studies have shown that 75% to 80 % of cases occur in women older than 50 years. In our study too, about 82.2 % of cases are above 50 years.

Socioeconomic Status

Endometrial carcinoma is thought to be prevalent in higher socioeconomic status in the Western countries. But in our study about 49 % of the patients belonged to class IV and 38% belonged to classV. Hence endometrial carcinoma is no longer a disease of affluent people in our population.

ANALYSIS OF RISK FACTORS

Age At Menarche

Early menarche (at age less than 13 years) has 1.5 to 2 times risk of endometrial carcinoma. In the present study, only 24.2% of cases attained early menarche.

Menstrual Cycles

Hyperoestrogenism due to anovulatory cycles causes menstrual irregularity and infertility poses 1.5 to 3 times risk of uterine carcinoma. Menstrual irregularity was elicited in about 40.3 % of our patients.

Age At Menopause

MacMahon et al elicited that late menopause occurring after the age of 52 years increases the risk of endometrial carcinoma and they are 2 to 3 times likely to get the disease. Hence when we analyzed the age of menopause in our patients, it is seen that 12 cases did not attain menopause, and all of them were less than 50 years. Of the 50 cases who attained menopause, 51.6 % attained at age less than 52 years and only 29 % attained after 52 years.

Parity

Nulliparity due to prolonged period of exposure to oestrogen is a proven risk factor for endometrial cancer with a relative risk of 2 to 3. Moreover, a woman's endometrial cancer risk decreases with each child birth. Jabo et al in his study observed that nulliparity was found only in 19.9 % of patients . In the present study about 14.5 % were nulliparous women and remaining 85.5 % were multiparous .

Medical Disorders

Diabetes mellitus increases a women's risk for endometrial cancer by 1.3 to 2.8 times. Richard Barakat observed that especially Type II diabetes associated with insulin resistance and hyperinsulinemia is associated with higher risk. Additionally, there is evidence that obese diabetic women have the highest risk of developing disease.

In our study, 23 out of 62 patients had diabetes mellitus (37 .1 %). Also, of the 23 cases with diabetes, 19 were Type II DM. Hypertension increases the risk by 1.5 times. In the present study about 24.2% cases had associated hypertension. In various studies, Hypothyroidism is found to be associated with endometrial carcinoma

but exact causal relationship is yet to be established. In our group of patients, 9 cases contributing to about 14.5 % had history of hypothyroidism. One patient had associated ischemic heart disease. Of these cases with associated medical disorders, 8 cases had more than one of the above disorders.

Obesity

Obesity is an undisputed risk factor for endometrial carcinoma as it increases oestrogen levels by increased peripheral aromatization of androstenedione. Bereck and Novak 's states that 21 to 50 pounds (9 to 22 kg) overweight increases risk for endometrial cancer by 3 times and more than 50 pounds (22 kg) above average weight increases risk by 10 times.

In a study on epidemiology conducted by Karen et al, obesity a risk factor for endometrial cancer and has been reported to account for 17–46% of all cases. They also found that overweight women had twice the risk of developing disease as normal-weight women, while in obese women the risk is four to five times. Brinton *et al*. reported that women with a body mass index (BMI) of 32 kg/m^2 or greater were four times as likely to develop endometrial cancer as women

with a BMI of less than 23 kg/m2, while women with a BMI of 35 kg/m2 or greater had six times the risk. Additionally, there are some data to suggest that for each 5 kg/m2 increase in BMI, there is a significant increase in risk of developing endometrial cancer. Iatrakis et al found that there was strong relationship between increased BMI and endometrial carcinoma.

Obesity in our study group was analyzed using Body Mass Index (BMI). It is observed that about 66.12 % (41 out of 62) of the cases were above average body weight. Of these 46.77 % were overweight with BMI of 25 to 30 kg /m^2 and 19.35 % were obese with BMI of >30 kg/ m^2. Of these two patients were very obese with BMI of 37 and 39 kg/m^2.

In our study, though the obvious causes of prolonged unopposed oestrogen stimulation of endometrium like early menarche, late menopause, irregular menstrual cycles and nulliparity were observed in less percentage of cases, obesity is observed in significant percentage (66 %) of cases. Hence increased incidence of obesity is the probable reason for increasing incidence of endometrial carcinoma in our population.

Other Risk Factors

LYNCH II syndrome (previously called Hereditary Nonpolyposis Colorectal Cancer HNPCC) due to genetic mutation in mismatch repair genes increases the risk for endometrial cancer by 20 folds. LYNCH syndrome was not observed in the present group of patients or in their family members.

Post menopausal hormone replacement therapy without progestins increases 4 to 8 times the risk. None of the patients in our study had history of hormone replacement therapy.

Tamoxifen therapy for treatment of breast cancer is associated with two to three fold increased risk for endometrial carcinoma. There was no history of Tamoxifen therapy in our study group. This is probably due to the small number of patients in the index study.

PRESENTING SYMPTOM

Novak's reports that 90% of women with endometrial carcinoma have vaginal bleeding or discharge as their only symptom. Barakat observed that 90 % of patients have bleeding and 10% have vaginal discharge. In our study, main symptom was postmenopausal bleeding in 56 % of cases, whereas 19.3% of patients presented with

perimenopausal bleeding. 27.4% had vaginal discharge as their major complaint and 20.9 % complained of pain . Though abnormal bleeding was not present in 90 % of patients, it was the first major presenting symptom in our study group too, accounting for about 75 .3%

CLINICAL EXAMINATION

Vaginal examination revealed bulky uterus in about 48.4 % cases .Uterus was normal in size in 32.2 % and even atrophic in 4.8 % cases. Uterus was enlarged to more than 10 weeks size in about 8 % cases. Due to obesity exact size of uterus could not made out in about 3.2 % cases. This observation shows that uterus may not be enlarged in all cases and that clinical examination alone may miss endometrial carcinoma if the uterus is of normal size or atrophic. Adnexal mass was identified in 2 cases which ultimately turned out to be synchronous ovarian tumour in one case and ovarian metastasis in another case.

INVESTIGATIONS

Pap Smear

Novak and Williams observe that Pap test is not a sensitive tool to diagnose endometrial cancer and only 30 to 50 % may have abnormal smear. In the present study, Pap smear was done for all patients except for 5 who had excessive bleeding. Of the 57 cases for whom Pap smear was done, 82.4 % were Negative for SIL, 15.7% had inflammatory smear and only one case (1.6%) had ASCUS which was proved to be chronic cervicitis in cervix biopsy. None of them were positive for endometrial carcinoma .Hence is not a reliable tool to diagnose endometrial carcinoma.

CA 125

Serum CA 125 is the important tumour marker which is elevated in advanced epithelial ovarian tumours. Novak observes that it may be elevated in advanced endometrial carcinoma also.

In our study serum CA 125 levels were measured in 8 cases. Of the 8 cases, 2 (25%) had levels > 35IU/ml and both them ovarian involvement at laprotomy. Remaining 6 (75%) cases had levels <35IU/ml , but three of them had advanced disease. Hence sensitivity

of serum CA 125 to diagnose advanced endometrial cancer is 40 % and specificity is about 75 %.

ULTRASOUND

Ultrasonogram is a useful adjunct to endometrial biopsy in evaluating postmenopausal bleeding and selecting patients for additional testing. ACOG in 2009 stated that in postmenopausal women with bleeding, endometrial stripe thickness measurement less than 5 mm can be attributed to endometrial atrophy.

In the present study group, about 98.3 % cases had thickened endometrium ($\geq$5 mm) .Hence endometrial thickness $\geq$ 5mm has high sensitivity in diagnosing endometrial cancer. Other findings include fibroid in 12.9%, mass in 8.1 %, polyp in 1.6 % of cases. Ultrasound was normal in 1.6 % of cases.

COMPUTED TOMOGRAPHY (CT)

CT scan is usually done in selected cases for further evaluation in endometrial carcinoma. It gives information about nodal involvement. In the study group CT was done for 32 cases .The most common finding was endometrial mass in 16 cases which is about 50%, followed by thickened endometrium in about 37.5 % cases.

Fluid collection was seen in 9.37 % of cases and nodes were diagnosed in about 9.37% of cases. Rectal invasion and omental deposits were diagnosed in one case each. The sensitivity of CT to diagnose nodal involvement is 62 % and specificity is 96.6%.

MRI

MRI is not routinely done for all patients. In the present study it was done for 6 patients and findings were thickened endometrium with polypoidal mass, omental nodules and nodal involvement. It was very precise in diagnosing myometrial invasion by observing the endometrial myometrial interface.

DILATION AND CURETTAGE

The standard method of assessing uterine bleeding and diagnosing endometrial carcinoma is the Dilatation and Curettage. In the index study, dilatation and curettage diagnosed 85.5 % of endometrial carcinoma, of which 77.4% were correctly diagnosed as endometrioid carcinoma, 6.5 % as villoglandular type and 1.6 % as papillary serous carcinoma. About 3.2 % of the carcinoma was falsely diagnosed as sarcoma and another 4.8 % of carcinoma was misdiagnosed as atypical hyperplasia and intraepithelial neoplasia.

Normal findings such as proliferative phase of menstrual cycle and postmenopausal state was falsely diagnosed in about 6.4 % of patients with endometrial carcinoma. The sensitivity of dilatation and curettage to diagnose endometrial is 88.70% and false negative rate of 11.29%.

SURGERY

Primary surgery was performed in all cases diagnosed to have endometrial carcinoma except one case which had rectal invasion diagnosed by CT scan. Total abdominal hysterectomy and bilateral salpingo-oopherectomy was done 72.6 % (45) of cases. For 16 cases (25.8%) staging laprotomy with lymph node dissection was done as indicated by features such as myometrial invasion >50 % by the tumour , isthumus or cervix extension , extrauterine spread, nonendometrioid histologic types or poorly differentiated tumours.

HISTOLOGIC TYPE

As observed by Novak's, Barakat and several other studies, endometrioid type accounts for about 80 % of endometrial carcinoma. In our study too, endometrioid contributed to about 96.77% of cases and thus the most common histologic type . Several variants are found in endometrioid carcinoma and endometrioid with squamous

differentiation, villoglandular type and secretory carcinoma. Literature documents squamous differention to be the most common variant with incidence of 15 to 25 % of endometrioid carcinoma followed by villoglandular with 2 % incidence and secretory carcinoma contributing about 1 %.The common variant found in the index study is 5 cases of villoglandular carcinoma accounting for about 8.33% of endometrioid carcinoma. Squamous differentiation and secretory type was not found in our observation.

Nonendometrioid types include mucinous carcinoma (5%), papillary serous carcinoma (3 – 4 %), clear cell carcinoma (5%) and undifferentiated type. The only nonendometrioid type that was observed was one case of clear cell carcinoma accounting for about 1.6% of all endometrial carcinoma.

Synchronous endometrial and ovarian cancers are the most frequent simultaneously occurring genital malignancies with incidence of 1.4 to 3.8 %. One such case of simultaneous ovarian and endometrial carcinoma was found in our study accounting for about 1.6 %. It was a primary ovarian endometrioid adenocarcinoma of well differentiated type with poorly differentiated endometrioid adenocarcinoma of uterus.

One patient had incidental thecoma of the ovary which had been diagnosed due to the endometrial carcinoma.

GRADE OF DIFFERENTIATION AND DEPTH OF MYOMETRIAL INVASION

Based on degree of differentiation, FIGO has classified tumours into three grades. Most of the cases in our study group were Grade I (well differentiated) tumours with incidence of 58.1% followed by 24.1 % of Grade II (moderately differentiated) and 16.1 % of Grade III (poorly differentiated)tumours .

Invasion of the tumour into <50 % or >50 % of myometrium has prognostic significance. Noninvasive or Superficially invasive tumours have 5 year survival of 80 to 90 % while deeply invasive tumours have 60 % survival. Of the 62 cases studied 55.73% had myometrial invasion of less than <50% and 44.26 % had invasion >50% of myometrium.

EXTRAUTERINE SPREAD

Spread of tumour to extrauterine sites like serosa , adnexa , peritoneum, adjacent organs and lymph nodes are associated with poor prognosis. Lymph nodes were involved in 4.8 % of cases. Adnexa ,

omentum and cervix was involved in 3.2 % of cases each. Serosa was breached in one case and rectum involved in one case. Peritoneal cytology was positive for malignant cells in one case.

FIGO STAGING

FIGO stage of the tumour is the most significant variable affecting survival in endometrial carcinoma. 5- year survival for stage I is 87% , stage II is 76 %, stage III is 59% and stage IV is 18 %.

Of the 62 patients analyzed in our study, about 81.2 % were stage I with 56.4 % in stage I A and 25.8 % in stage I B. There were two patients with stage II contributing to about 3.2%. Of the 8 % in stage II, 3.2% belonged to stage IIIA (serosal and adnexal involvement) and the remaining 4.8 % belonged to stage IIIC (nodal involvement).

ADJUVANT TREATMENT

Stage I A was not given any adjuvant treatment and was observed whereas stage IB was given adjuvant RT to prevent local recurrences. Stage II and III was given adjuvant chemotherapy with 3 cycles and radiotherapy while stage IV was given systemic chemotherapy with 6 cycles and radiotherapy

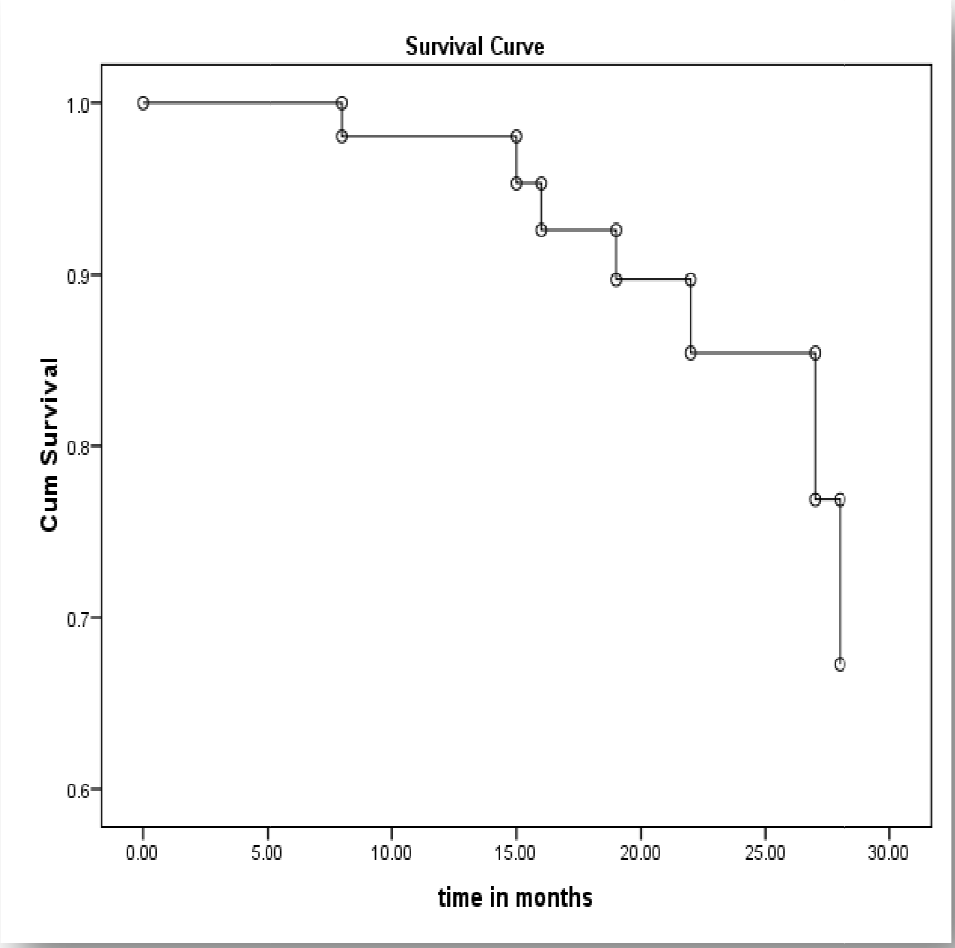
SURVIVAL ANALYSIS

Interval Start Time	Number Entering Interval	Number of Terminal Events	Cumulative Proportion Surviving at End of Interval	Std. Error of Cumulative Proportion Surviving at End of Interval	Hazard Rate	Std. Error of Hazard Rate
0	61	0	1.00	1.00	.00	.00
2	61	0	1.00	1.41	.00	.00
4	61	0	1.00	1.73	.00	.00
6	61	0	1.00	2.00	.00	.00
8	51	1	.98	2.19	.01	.01
10	45	0	.98	2.39	.00	.00
12	41	0	.98	2.58	.00	.00
14	38	1	.95	2.68	.01	.01
16	35	1	.93	2.76	.01	.01
18	33	1	.89	2.81	.02	.02
20	27	0	.89	2.94	.00	.00
22	21	1	.85	2.91	.03	.03
24	17	0	.85	3.03	.00	.00
26	12	1	.77	2.83	.05	.05
28	8	1	.61	2.33	.11	.11
30	1	0	.61	2.40	.00	.00

Survival of our 62 patients with endometrial carcinoma was analysed using life table . It revealed the 2 year survival rate of our patients was 85%. It is seen that the median survival period in our group was 30 months. The maximum hazard rate (ie death) is 11% and it has occurred after 28 months of survival .

SURVIVAL CURVE

FIGURE 21



This curve depicts the overall survival of the patients with endometrial carcinoma in our study group. The median survival is 30 months. Due to small number of patients in the study group, survival of the patients in the individual stage could not be analyzed.

ANALYSIS OF INFLUENCE OF PROGNOSTIC FACTORS ON THE SURVIVAL

S. NO	VARIABLE		MEDIAN SURVIVAL (MONTHS)	P VALUE
1	Histologic Type	Endometrioid	30.000	0.669
		Non Endometrioid	27.000	
2	Histologic Grade	I	30.000	0.267
		II	26.000	
		III	28.0000	
3	Myometrial Invasion	<50%	30.000	0.149
		>50%	27.229	
4	Extrauterine Spread	Absent	30.000	0.306
		Present	26.882	
5	FIGO Stage	I	30.000	0.000
		II	18.000	
		III	26.500	
		IV	9.000	

The influence of various prognostic factors on survival was studied using lifetable analysis and significance was tested using log rank test.

Studies have proved that endometrioid type is associated with 92 % survival rate and other aggressive non endometrioid type is associated with 33 % survival rate. In the present study group , endometrioid type is associated with 30 months survival while non endometrioid is associated with 27 months survival. Thus survival is

definitely reduced with nonendometrioid aggressive types compared to endometrioid type.

Novak ‘s reports 92 % and 86 % disease free 5-year survival for grade I and II respectively whereas 64% for grade III tumours. In the present study, grade I tumours had 30 months survival whereas grade II and III had 26 months survival each. Hence survival is reduced with poorly differentiated tumours when compared to well differentiated tumours .

Superficially invasive tumours have survival of 80 to 90 % while deeply invasive tumour have survival of about 60 %. The present study found survival of 30 months for <50 % myometrial invasion and 27 months when myometrial invasion was >50 %.

It is proved that spread of tumour to extrauterine sites like omentum , adnexa , lymph nodes ,peritoneum and cervix is associated with poor survival. In the index study, patients with tumour confined to uterus had 30 months survival while extrauterine spread had 26 months survival.

Though the association of factors like nonendometrioid type , poorly differentiated, deeply invasive tumours and extrauterine spread

with poor survival are not statistically significant ,these are obviously associated with reduced survival. The statistical insignificance can be attributed to small number of patients in the study group .

The most important factor affecting prognosis is FIGO stage. Survival for stage I is 87%, stage II is 76%, stage III is 59 % and for stage IV is 18 %. When survival was analysed for our patients by lifetable analysis , it revealed that survival was 30 months for stage I , 18 months for stage II , 26.5 months for stage III and 9 months for stage IV. Since there was no death reported in our patients with stage II disease it was excluded from log rank test and significance was tested for difference in survival between stage I , III and IV. The p value was 0.000 which is <0.05 and hence statistically significant. This implies that stage III has significantly increased survival than stage IV and stage I has the best survival.

SUMMARY

This study was conducted at The Institute of Obstetrics and Gynaecology , Egmore ,Chennai from June 2011 to December 2013 and 62 cases of endometrial carcinoma .

The study revealed the following :

- The average age of incidence is 55.73 years.
- 82.2 % patients were above 50 years of age.
- 24.2% patients in study group attained menarche at an early age.
- 40.3% of the cases had irregular menstrual periods.
- 12 cases did not attained menopause and 29 % of the cases attained late menopause .
- Only 14.5 % patients were nulliparous.
- 37.1% patients had diabetes mellitus, 24.2% had hypertension , 14.5% had hypothyroidism and 12.9 % of cases had more than one of the above medical disorders.
- 33.87 % had normal BMI.
- 46.77% were overweight with BMI of 25 to 30 kg/m^2 and 19.35 % were obese with BMI of >30 kg/m^2

- About 65 % of the patients had abnormal bleeding as the presenting symptom with 56 % of patients had postmenopausal bleeding and 19.3 % had perimenopausal bleeding. Vaginal discharge was the next common symptom in 27.4% of patients.
- 48.4 % had bulky uterus on vaginal examination and uterus was normal in 33.9% of the cases.
- The sensitivity of serum CA 125 to diagnose advanced endometrial cancer is 40 % and specificity is 75%.
- About 95. 3 % of the patients had thickened endometrium in ultrasound .
- Sensitivity of CT scan to diagnose nodal involvement is 62 % and specificity is 96.6%.
- Sensitivity of dilatation and curettage to diagnose endometrial carcinoma is 88.7% and false positive rate is only 11.29 %.
- Endometrioid adenocarcinoma is the most common histologic type of about 96.77 % with villoglandular variant found in 8.33%. One case of nonendometrioid type (clear cell carcinoma) was seen. One case of synchronous endometrioid adenocarcinoma of ovary and uterus was diagnosed. Another case had incidental Thecoma of ovary.

- 58 % had grade I tumours, 24 % had grade II and 16 % had grade III tumours.
- Myometrial invasion more than 50 % was found in 24.26 % of the cases.
- Extrauterine spread was present in 19.35 % of the cases. Lymph nodes metastasis was found in 3 cases. Tumour had spread to adnexa , omentum and cervix in 2 cases each. One patient had rectal invasion and one had serosal invasion.
- 82.2% of the cases were FIGO stage I, 3.2% were stage II, 7 % were stage III and 4.8 % belonged to stage IV.
- The overall 2- year survival rate for endometrial carcinoma in our group of patients was 85 %.
- In the present study, median survival was 30 months.
- Poor prognostic factors like nonendometrioid type of carcinoma, myometrial invasion , poorly differentiated tumours and extrauterine spread of tumours had decreased median survival .
- Stage I had best survival and stage III had better survival than stage IV and this was statistically significant.

CONCLUSION

The incidence of Endometrial carcinoma is increasing in our country in recent years due to

1. Increased longevity of women
2. Increased obesity
3. Increased incidence of Diabetes Mellitus.
4. Westernisation of lifestyle.

Early diagnosis of endometrial carcinoma is important as the disease is almost curable when the disease is confined to uterus.

Increase the awareness among perimenopausal and post menopausal women to seek medical care immediately in case of any abnormal bleeding or vaginal discharge.

Encourage healthy lifestyle and eating habits to decrease incidence of obesity among general population.

Patients with intact uterus should never be prescribed oestrogen alone for hormone replacement therapy.It should always be combined with progesterone to decrease the risk of endometrial carcinoma.

Drugs like Selective Estrogen Receptor Modulators can also be used for hormone replacement therapy to avoid endometrial stimulation.

Adjuvant treatment with chemotherapy and radiotherapy in high risk cases increases the survival.

Multidisciplinary team approach by Gynaecologist, Surgical oncologist, Medical oncologist and Radiation oncologist will help to improve the survival of patients with endometrial carcinoma.

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PROFORMA

Introduction

- Name of patient wcc no:
- Age of patient
- occupation

Presenting Complaint

History of Presenting Complaint

- Menstrual problems / Irregular bleeding
- Duration of problem
- Cycle length
- Length of period
- How heavy is each period
- Tampons or pads - how many a day / or both at once
- Clots
- Flooding
- Intermenstrual bleeding
- Post coital bleeding
- Pain with period
- Any previous treatment
- Any previous investigations
- Ever miss work/ school for problem
- Ever been anaemic

Unusual vaginal discharge

- foul smelling
- pus-like
- blood tinged

Pelvic pain

- If pain is involved ascertain site, radiation (if any) and character
- Onset
- Periodicity
- Duration
- Recurrence?
- Aggravating & relieving factors
- Severity
- Previous sexually transmitted infections
- Dyspareunia – deep or superficial
- Post-coital bleeding

Change in bladder habits

- pain during urination
- difficult urination
- blood in the urine

Change in bowel habits

- pain during bowel movement
- difficult bowel movement
- blood in the stool

- ascites (buildup of fluid in the abdomen), which causes abdominal swelling
- weight loss
- loss of apetite

Menstrual History

- Menarche and menopause
- 1st day of last menstrual period
- Length of bleeding (days)
- Frequency
- Regularity
- Bleeding between periods
- Bleeding after intercourse

Any post menopausal bleeding *Nature of periods

- Heavy?
- Clots?
- Flooding?

Past Gynecological History

- Gynecological symptoms
- Gynecological diagnoses
- Gynecological surgery
- h/o endometrial hyperplasia
- Date & result of cervical smears
- Contraception

Past Obstetric History

- Gravidity and Parity
    - Induction of labor/Spontaneous
    - Normal Delivery/casearean
    - Weight of babies
    - Sex of babies
    - Complications before, during and after delivery
- Any terminations
- Any miscarriages
- Any ectopic pregnancies

Drug History

- Prescribed medications
- use of tamoxifen for breast cancer
- Any known drug allergies .
- Any tablets / inhalers
- Allergies

Past Medical History

- Past operations
- diabetes
- hypertension
- Other medical conditions
- Current or past illnesses
- Hospital admissions
- Past surgeries

Family History

- Family history of hypertension, diabetes
- Family history of breast lumps / cancer / other gynaecological cancers

Personal History

- estrogen replacement therapy
- smoking
- alcohol

Smear *History*

- When last smear
- Always normal?
- Any previous problems
- Ever had a colposcopy?

General Examination:

- Ht
- Wt
- BSA
- BMI
- Pulse
- Blood Pressure
- Respiratory Rate
- Temperature
- Anaemia
- Cyanosis
- Jaundice

Systemic examination:

CVS:

RS:

CNS:

ABD :

PER VAGINAL EXAMINATION:

Investigations

- Complete blood count N/ABN
- Blood chemistry tests
- LFT N/ABN
- Tumour marker tests
- Transvaginal ultrasound
- Endometrial Biopsy
- Dilatation and curettage
- Endoscopy
  - Hysteroscopy
  - Cystoscopy
  - Proctoscopy
- Chest x-ray
- Computed tomography (CT) scan

DIAGNOSIS:

TREATMENT

Surgery

- Total abdominal hysterectomy
- Total vaginal hysterectomy
- Total laparoscopic hysterectomy.
- Bilateral salpingo-oophorectomy:
- Radical hysterectomy

Histopatologic examination:

Carcinoma in situ

- Epithelial tumors
  - Endometrioid
  - Papillary endometrioid
  - Papillary serous
  - Clear cell
  - Mucinous
- Mesenchymal tumors
  - Endometrial stromal sarcoma
  - Leiomyosarcoma
  - Nonspecific sarcomas
- Mixed tumors
  - Malignant mixed mullerian
  - Adenosarcoma
- Grade of carcinoma

Chemotherapy

Radiation therapy

- External pelvic irradiation
- Vaginal vault irradiation
- Extended field irradiation

Hormone therapy

S.NO	NAME	AGE	WCC NO	socioeconomic status	PRESENTING COMPLAINTS	AGE AT MENARCHE	REGULAR/IRREGULAR CYCLES	AGE AT MENOPAUSE	PARITY	MEDICAL DISORDERS	FAMILY HISTORY	Wt	BMI	CLINICAL EXAMINATION	CA 125	PAP SMEAR	USG	CT	FRACTIONAL CURETTAGE	SURGERY	HPE	GRADE	MYOMETRIAL INVASION	OTHER FEATURES	FIGO	CHEMOTHERAPY	RADIOTHERAPY	SURVIVAL (MONTHS)	follow up
1	BACKKIALAKSHMI	55	115/11	IV	PMB	13	R	41	N	DM(O)	NS	53	24	B	ND	NSIL	8 mm	MASS	endo GR I	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	32 MON	Alive
2	BANUMATHI	45	116/11	IV	PMB VD LOA	16	IR	43	M	NIL	NS	61	23	B	15	INFL	7 mm, ?FIB	RECTAL INVASION	endo GR II	ND	NA	NA	NA	RECTAL INVASION	IV A	YES	YES	8 MON	Dead
3	ANDAL	65	124/11	IV	PMB	16	R	55	M	NIL	NS	62	27	B	ND	NSIL	8 mm	MASS	endo GR II	TAH BSO	ENDO	I	>50	NIL	I B	NO	YES	27 MON	Dead
4	SUNDARI	60	143/11	V	PMB	13	R	40	M	DM (O)	NS	59	24	10 WKS	ND	NSIL	20 mm	THICKENED EM	endo GR II	TAH BSO	ENDO	I	>50	NIL	I B	NO	YES	29MON	alive
5	SAROJA	54	145/11	IV	VD	12	IR	52	M	NIL	NS	65	28	N	ND	NSIL	9mm	ND	ENDO GR I	TAH BSO	ENDO	II	<50	NIL	IA	NO	NO	28 MON	alive
6	RAJAMsMAL	52	146/11	IV	PERI MB,LW	15	IR	_	M	HT	NS	61	30	16 TO 18	18.3	ND	18 mm ?FIB	P MASS	ENDO GR II	STAGING LP	ENDO	III	>50	SEROSAL INVASION	III A	YES	YES	22 MON	dead
7	GANGA	50	159/11	III	VD	16	R	_	M	HT	NS	55	23.5	B	ND	INFL	15 mm, MASS	ND	ENDO GR III	TAH BSO	ENDO	III	>50	NIL	I B	YES	YES	28 MON	alive
8	POOVAYEE	50	169/11	IV	VD	17	R	47	M	HT HYPO	NS	57	23	B, ADNXMASS	17.9	INFL	18 mm ovamass	MASS	ESS	STAGING LP	ENDO	III	>50	ADNEXA, POSTIVE PERI WASH	III A	YES	YES	25 MON	alive
9	KANNIAMMAL	53	172/11	IV	PMB	14	R	45	M	NIL	NS	64	27.5	N	ND	NSIL	13 mm	ND	ENDO GR II	TAH BSO	ENDO	III	>50	NIL	I B	YES	YES	28 MON	alive
10	NITHYA	57	174/11	IV	PMB	12	R	55	M	NIL	NS	50	21	N	ND	NSIL	14mm	ND	ENDO GR II	TAH BSO	ENDO	II	<50	NIL	I A	NO	NO	28 MON	alive
11	KAMATCHI	60	175/11	V	PMB ,PAIN	13	IR	50	M	HT DM(O)	NS	55	26	B	ND	ASCUS	5 mm FIB	MASS	ENDO GR II	TAH BSO	ENDO	III	>50	ENDOCX	II	YES	YES	19 MON	alive

S.NO	NAME	AGE	WCC NO	socioeconomic status	PRESENTING COMPLAINTS	AGE AT MENARCHE	REGULAR/IRREGULAR CYCLES	AGE AT MENOPAUSE	PARITY	MEDICAL DISORDERS	FAMILY HISTORY	Wt	BMI	CLINICAL EXAMINATION	CA 125	PAP SMEAR	USG	CT	FRACTIONAL CURETTAGE	SURGERY	HPE	GRADE	MYOMETRIAL INVASION	OTHER FEATURES	FIGO	CHEMOTHERAPY	RADIOTHERAPY	SURVIVAL (MONTHS)	follow up
12	RAJESHWARI	61	178/11	IV	VD ,PAIN	11	R	54	M	HT	NS	58	23	12 WKS	10.2	NSIL	14mm FIB	MASS	ENDO GR I	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	27 MON	alive
13	RAMAYEE	56	182/11	IV	PMB	13	R	50	M	DM(I)	NS	57	25	B	ND	NSIL	15 mm	ND	ENDO GR II	TAH BSO	ENDO	II	<50	NIL	I A	NO	NO	28 MON	alive
14	SHANTHA	58	185/11	IV	PMB VD PAIN	13	IR	50	M	HT	NS	50	21	SIZE N OT MA DE OUT	ND	NSIL	14mm	ND	ENDO GR I	TAH BSO	ENDO	I	>50	NIL	I B	NO	YES	26 MON	alive
15	KKRISHNAVENI	57	192/11	IV	PMB VD	12	IR	47	M	HT DM IHD	NS	57	24.5	N	ND	NSIL	11mm	ND	PAP SE CA	TAH BSO	CLEAR CE	III	<50	NIL	I A	YES	YES	26 MON	alive
16	LAKSHMI	59	197/11	V	PMB	12	IR	57	M	DM(O)	NS	66	29.5	B	ND	NSIL	10mm	ND	ENDO GR II	TAH BSO	ENDO	II	<50	NIL	I A	NO	NO	24MON	alive
17	MARIYA	62	205/11	III	PMB	12	R	54	M	NIL	NS	59	22	B	ND	NSIL	12mm	FLUID COLL	ENDO GR I	TAH BSO	ENDO	II	>50	NIL	I B	NO	YES	24MON	alive
18	SAROJA	55	206/11	IV	PMB PAIN	14	R	53	M	DM (I)	NS	56	23.5	B	ND	NSIL	7mm FIB	THICK ENED EM	VG GR I	STAGI NG LP	VG	II	>50	NODES	III C	YES	YES	28 MON	dead
19	NAGALAKSHMI	45	212/11	IV	PAIN LW	14	IR	_	N	DM(O)	NS	65	27	MASS 20 WKS	396	NSIL	5mm, COMPLEX OVARIAN MASS	ADNXL MASS	NEOPLASIA OF SPINDLE SHAPED CELLS+CIN I	STAGI NG LP	ENDO GR I OF OVARY+ENDOGRIII METS TO ENDOCX	OVARY IIIA+ENDO GRII	NA			DEFAULTER		6mon	defaulter
21	HEMALATHA	46	216/11	V	PMB	18	R	42	M	NIL	NS	63	27.5	N	ND	NSIL	6mm	MASS	ENDO GR I	TAH BSO	ENDO	I	>50	NIL	I B	NO	YES	25 MON	alive

S.NO	NAME	AGE	WCC NO	socioeconomic status	PRESENTING COMPLAINTS	AGE AT MENARCHE	REGULAR/IRREGULAR CYCLES	AGE AT MENOPAUSE	PARITY	MEDICAL DISORDERS	FAMILY HISTORY	Wt	BMI	CLINICAL EXAMINATION	CA 125	PAP SMEAR	USG	CT	FRACTIONAL CURETTAGE	SURGERY	HPE	GRADE	MYOMETRIAL INVASION	OTHER FEATURES	FIGO	CHEMOTHERAPY	RADIOTHERAPY	SURVIVAL (MONTHS)	follow up
22	LAKSHMI	41	231/11	IV	PERI MB	14	IR	_	M	NIL	NS	61	23	B	ND	ND	5mm	NORMAL	EIN	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	6 MON	alive
23	THERESA	52	247/11	IV	PERI MB PAIN	13	R	_	M	NIL	NS	58	23	B	ND	ND	16mm	MASS	ENDO GRII	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	20MON	alive
24	LOGESHWARI	56	251/11	III	PMB	14	IR	53	M	HYPO	NS	65	27.5	B	ND	INFL	12mm	ND	VG GR I	TAH BSO	VG	I	>50	NIL	IB	NO	YES	20 MON	alive
25	LALITHA	57	253/11	V	PMB VD	12	R	55	M	DM(O)	NS	65	29	B	ND	NSIL	25mm	THICKENED EM	ENDO GR III	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	20MON	alive
26	DEIVANAI	70	254/11	IV	VD	13	R	40	M	DM(O)	NS	67	28	B	ND	NSIL	16mm, mass	ND	ENDO GR I	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	22 MON	alive
27	JAYA	56	271/11	IV	PMB	15	R	42	M	HT, HYPO	NS	64	28	N	ND	NSIL	15 mm	ND	ENDO GR I	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	22 MON	alive
28	BABY	67	284/12	IV	PMB	14	R	50	M	HT	NS	57	26	N	3.2	NSIL	8mm	ND	ENDO GR I	STAGING LP	ENDO	II	>50	NIL	I B	NO	YES	22 MON	alive
29	RANMUTHU	57	007/12	V	PMB	15	R	55	M	NIL	NS	59	31	B	ND	INFL	18mm	ND	COMPLEX HYPERPLASIA WTH NUCLEAR ATYPIA	STAGING LP	ENDO	I	>50	LUS +	IA	NO	YES	20MON	alive
30	ANJALAKSHMI	70	009/12	IV	PMB PAIN	13	R	55	M	NIL	NS	56	29	B	ND	NSIL	13mm	THICKENED EM	ENDO GR II	STAGING LP	ENDO	I	>50	LUS +	I A	NO	YES	21MON	alive
31	RAJESHWARI	66	008/12	III	PMB PAIN	16	R	48	M	DM(O)	NS	69	30	B	ND	NSIL	9mm	THICKENED EM	ENDO GR II	STAGING LP	ENDO	I	<50	NIL	I A	NO	NO	21MON	alive
32	VASANTHA	53	012/12	IV	VD	13	IR	50	N	NIL	NS	61	29	B	ND	NSIL	12mm	ND	ENDO GR I	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	15MON	dead

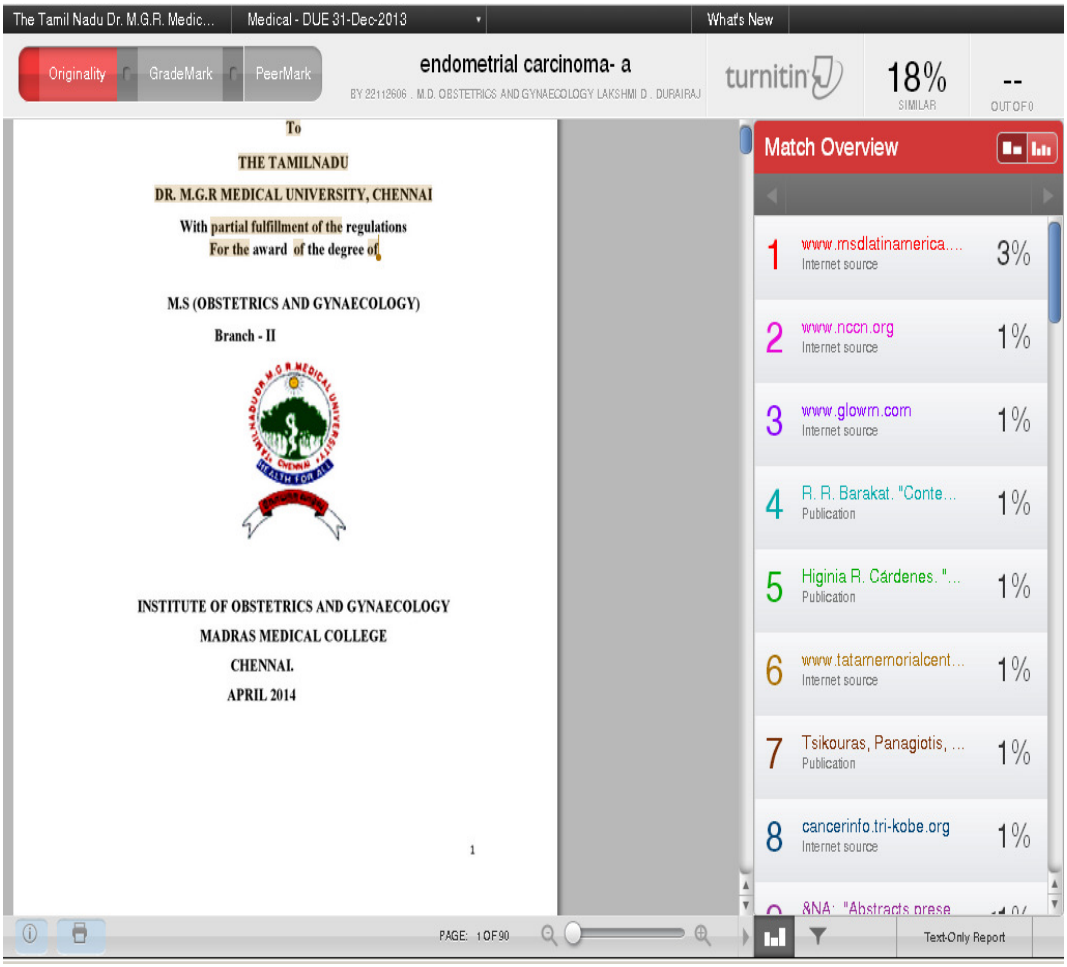
S.NO	NAME	AGE	WCC NO	socioeconomic status	PRESENTING COMPLAINTS	AGE AT MENARCHE	REGULAR/IRREGULAR CYCLES	AGE AT MENOPAUSE	PARITY	MEDICAL DISORDERS	FAMILY HISTORY	Wt	BMI	CLINICAL EXAMINATION	CA 125	PAP SMEAR	USG	CT	FRACTIONAL CURETTAGE	SURGERY	HPE	GRADE	MYOMETRIAL INVASION	OTHER FEATURES	FIGO	CHEMOTHERAPY	RADIOTHERAPY	SURVIVAL (MONTHS)	follow up
34	RECHAL	61	43/12	V	PMB	12	IR	45	M	HYPO,DM (I)	NS	55	25	N	ND	NSIL	6mm	THICKENED EM,FLUID COLL	ENDO GR I	STAGING LP	ENDO	I	>50	NIL	I B	NO	YES	19MON	alive
35	SARASWATHY	48	91/12	V	PERI MB	13	IR	_	M	NIL	NS	56	24	N	ND	ND	11mm, polyp	ND	ENDO GR II	STAGING LP	ENDO	III	>50	NIL	I B	NO	YES	19MON	dead
36	VALLI	46	113/12	V	PERI MB PAIN	13	IR	_	M	NIL	NS	67	30	B	ND	NSIL	12mm, FIB	ND	PROLIFERATIVE PHASE	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	18MON	alive
37	RAJESHWARI	50	241/12	IV	PERI MB	14	R	_	M	NIL	NS	59	28	B	ND	NSIL	15mm	ND	ENDO GR I	STAGING LP	ENDO	I	>50	NODES	III C	YES	YES	19MON	alive
38	BANU	42	257/12	III	PERI MB	12	IR	_	M	NIL	NS	60	23	B	ND	NSIL	13mm	ND	COMPLEX HYPERPLASIA WTH NUCLEAR ATYPIA	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	16MON	alive
39	NAGAMMA	54	262/12	IV	PMB	13	R	52	M	NIL	NS	61	24.5	B	ND	INFL	12mm, mass	MASS	ENDO GR I	TAH BSO	ENDO	III	>50	NIL	I B	NO	YES	16MON	dead
40	KALPANA	45	273/12	V	PERI MB,PAIN	15	IR	_	N	NIL	NS	75	34	N	ND	NSIL	21mm	THICKENED EM	ENDO GR II	TAH BSO	ENDO	I	<50	NIL	IA	NO	NO	14MON	alive
41	IINDRANI	55	308/12	V	PMB	16	R	48	M	NIL	NS	52	25.5	N	ND	NSIL	11mm	MASS	POST MENOPAUSAL STAE	TAH BSO	ENDO	I	<50	NIL	IA	NO	NO	14MON	alive
42	SHANTHAKUMARI	56	337/12	V	VD	14	R	52	M	DM(I)	NS	65	28.5	B	ND	NSIL	9mm	ND	PROLIFERATIVE PHASE	TAH BSO	ENDO	III	<50	LUS +	I B	NO	RT	12MON	alive

S.NO	NAME	AGE	WCC NO	socioeconomic status	PRESENTING COMPLAINTS	AGE AT MENARCHE	REGULAR/IRREGULAR CYCLES	AGE AT MENOPAUSE	PARITY	MEDICAL DISORDERS	FAMILY HISTORY	Wt	BMI	CLINICAL EXAMINATION	CA 125	PAP SMEAR	USG	CT	FRACTIONAL CURETTAGE	SURGERY	HPE	GRADE	MYOMETRIAL INVASION	OTHER FEATURES	FIGO	CHEMOTHERAPY	RADIOTHERAPY	SURVIVAL (MONTHS)	follow up
43	PANDIAMMAL	67	341/12	III	VD	13	IR	45	N	NIL	NS	57	22.5	14 WKS	268.4	INFL	10mm	THICKENED EM, OMNTAL NODULES	ENDO GR I	STAGING LP	ENDO	II	>50	B/LOV ARAN METS OMENTAL DEPOSITS	IV B	SYS	NO	6MON	alive
44	MUNIAMMA	57	342/12	V	VD	12	R	55	B	NIL	NS	66	28	B	ND	NSIL	9 mm	ND	ENDO GR II	TAH BSO	ENDO	II	<50	NIL	I A	NO	NO	12MON	alive
45	SALIMUNISHA	60	343/12	V	PMB	11	R	58	M	DM(O)	NS	82	37	N	ND	NSIL	10mm	THICKENED EM	ENDO GR II	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	12MON	alive
46	RUKMANI	50	390/12	V	PMB	14	R	46	M	HT	NS	67	29	N	ND	NSIL	14mm	thickened em,RT INT ILIAC NODE+	ENDO GR I	STAGING LP	ENDO	I	>50	NIL	IB	NO	YES	11MON	alive
47	VASANTHA	63	410/12	IV	PMB	13	R	48	M	HT	NS	85	39	N	ND	NSIL	25mm	MASS	ENDO GR II	TAH BSO	VG	II	>50	NIL	I B	YES	YES	11MON	alive
48	RANI	48	007/13	IV	PMB	14	IR		M	NIL	NS	67	29	N	ND	INFL	11mm	MASS, NODES	ENDO GR III	STAGING LP	ENDO	I	<50	NODES	III C	YES	YES	9MON	alive
49	AYYAMMAL	65	33/13	IV	PMB,VD	16	R	49	M	NIL	NS	55	29.5	N	ND	NSIL	13mm	ND	VG GR I	TAH BSO	VG	I	<50	NIL	I A	NO	NO	10MON	alive
50	MALLIGA	50	78/13	V	PERI MB,VD	16	IR		N	HYPO	NS	70	31	B	ND	ND	12mm	ND	ENDO GRII	TAH BSO	ENDO	II	<50	NIL	IA	NO	NO	9MON	alive
51	PUSHAPAVATHI	65	87/13	V	LW LA	12	R	45	M	HT DM(O)	NS	50	25.5	ATROPHC	ND	NSIL	8mm	FLUID COLL, LESION	ENDO GR I	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	9MON	alive
52	BERNIE	45	93/13	IV	PERI MB	13	IR	_	M	DM(O)	NS	58	22	B	ND	NSIL	10mm	ND	ENDO GR I	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	6MON	alive
53	JOTHI	61	92/13	V	PMB PAIN	16	R	40	M	DM(o)	NS	72	32	N	ND	NSIL	N	THICKENED EM	ENDO GR II	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	8MON	alive

S.NO	NAME	AGE	WCC NO	socioeconomic status	PRESENTING COMPLAINTS	AGE AT MENARCHE	REGULAR/IRREGULAR CYCLES	AGE AT MENOPAUSE	PARITY	MEDICAL DISORDERS	FAMILY HISTORY	Wt	BMI	CLINICAL EXAMINATION	CA 125	PAP SMEAR	USG	CT	FRACTIONAL CURETTAGE	SURGERY	HPE	GRADE	MYOMETRIAL INVASION	OTHER FEATURES	FIGO	CHEMOTHERAPY	RADIOTHERAPY	SURVIVAL (MONTHS)	follow up
54	FATHIMA	49	94/13	III	PERIMB	11	IR	_	M	HT	NS	58	22	12	ND	INFL	13mm,FIB	ND	PROLIFERATIVE PHASE	TAH BSO	ENDO	I	<50	NIL	IA	NO	NO	8MON	alive
55	NGHTINGALE	52	96/13	V	VD	15	IR	51	M	DM(O)	NS	58	23	B	ND	NSIL	15mm	MASS,EXT ILIAC NODE	ENDO GR II	STAGING LP	ENDO	I	>50	LUS CX	II	YES	YES	10MON	alive
56	INDRANI	54	124/13	IV	PMB, VD	12	R	53	N	DM(O)	NS	71	31	N	ND	NSIL	17mm	ND	ENDOGRI	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	7MON	alive
57	MANGALAKSHMI	57	163/13	V	PMB	15	R	45	M	DM(I)	NS	69	32	SIZE N OT MA DE OUT	ND	NSIL	20mm	AB N THICKENED EM,46 mm	ENDO GR II	TAH BSO	ENDO	III	<50	NIL	I B	NO	YES	6MON	alive
58	MALLKA	60	175/13	V	PMB	15	R	45	M	NIL	NS	68	28	N	ND	NSIL	FIB 17mm	ND	ENDO GR I	TAH BSO	ENDO	I	<50	NIL	I A	NO	NO	6MON	alive
59	KANNAMA	50	174/13	V	PERIMB	15	IR	_	M	HYPO	NS	55	23.5	N	ND	NSIL	15mm	ND	ENDO GRI	STAGING LP	ENDO	II	>50	OMNTM	IV B	YES	NO	6MON	alive
60	CLARRAMMA	62	253/13	V	PMB, PAIN	15	R	52	M	DM(O), HT, HYPO	NS	67	29.5	N	ND	NSIL	12mm	MASS	ENDO GR I	TAH BSO	ENDO	I	>50	NIL	I B	NO	YES	6MON	alive
61	MANICKAMMAL	70	263/13	III	PMB	12	R	55	M	DM(O) HT HYPO	NS	69	30	B	ND	NSIL	14mm	ND	ENDO GRII	TAH BSO	ENDO	II	<50	NIL	IA	NO	NO	6MON	alive
62	KASTHURI	53	287/13	II	VD ,PAIN	13	IR	49	N	DM(O)	NS	70	32	B	ND	NSIL	11mm	ND	ENDO GRI	TAH BSO	ENDO	I	<50	NIL.	IA	NO	NO	6 mON	alive

KEY TO MASTER CHART

PMB	:	Post menopausal bleeding
PERI MB	:	Perimenopausal bleeding
VD	:	Vaginal discharge
LW	:	Loss of weight
LOA	:	Loss of appetite
R/IR	:	Regular / Irregular
M/N	:	Multiparous / Nulliparous
DM	:	Diabetes Mellitus
HT	:	Hypertension
HYPO	:	Hypothyroidism
NSIL	:	Negative for Squamous Intraepithelial Lesion
INFL	:	Inflammatory
ENDO	:	Endometrioid adenocarcinoma
VG	:	Villoglandular
TAH BSO	:	Total abdominal hysterectomy with bilateral salpingooopherectomy
ND	:	Not done
NS	:	Not significant
NA	:	Not available / Applicable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With partial fulfillment of the regulations
For the award of the degree of
M.S (OBSTETRICS AND GYNAECOLOGY)
Branch - II
INSTITUTE OF OBSTETRICS AND GYNAECOLOGY
MADRAS MEDICAL COLLEGE
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INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI -3
Telephone No : 044 25305301
Fax : 044 25363970
EC RegNo.ECR/270/Inst./TN/2013

CERTIFICATE OF APPROVAL

To
Dr.D.Lakshmi,
MD OG (PG),
Madras Medical College, Chennai-3.

Dear D.Lakshmi,

The Institutional Ethics committee of Madras Medical College, reviewed and discussed your application for approval of the proposal entitled "Endometrical Carcinoma – a Clinicopathological study" No.12062013.

The following members of Ethics Committee were present in the meeting held on 11.06.2013 conducted at Madras Medical College, Chennai -3.

1. Dr.SivaKumar, MS FICS FAIS --- Chairperson
2. Prof. R. Nandhini MD -- Member Secretary
   Director, Instt. of Pharmacology ,MMC, Ch-3
3. Prof. Shyamraj MD -- Member
   Director i/c , Instt. of Biochemistry , MMC, Ch-3
4. Prof. P. Karkuzhali. MD -- Member
   Prof., Instt. of Pathology, MMC, Ch-3
5. Prof. A. Radhakrishnan MD -- Member
   Prof of Internal Medicine, MMC, Ch-3
6. Prof. S. Deivanayagam MS -- Member
   Prof of Surgery, MMC, Ch-3
7. Thiru. S. Govindsamy. BABL -- Lawyer
8. Tmt. Arnold Saulina MA MSW -- Social Scientist

We approve the proposal to be conducted in its presented form.

Sd/ Chairman & Other Members

The Institutional Ethics Committee expects to be informed about the progress of the study, and SAE occurring in the course of the study, any changes in the protocol and patients information / informed consent and asks to be provided a copy of the final report.

R Nandini 12/7/13
Member Secretary, Ethics Committee

PATIENT CONSENT FORM

Title of the Project

ENDOMETRIAL CARCINOMA

A CLINICO PATHOLOGICAL STUDY

Institution : Institute of Obstetrics & Gynaecology,
Egmore,Chennai – 600 008.

Name : Date :

Age : IP No. :

Sex : Project Patient No :

The details of the study have been provided to me in the writing and explained to me in my own language.

I confirm that I have understood the above study and had the opportunity to ask questions.

I understood that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without the medical care that will normally be provided by the hospital being affected.

I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purpose(s).

I have been given an information sheet giving details at the study

I fully consent to participate in the above study regarding endometrial carcinoma and drug intake before and after surgery.

Name of the Subject Signature Date

Name of the Investigator Signature Date